

Intel® Carrier Grade Server TIGPT1U User Guide

A Guide for Technically Qualified Assemblers of Intel® Identified Subassemblies/Products

Order Number: C66453-002

Disclaimers

Disclaimer

Information in this document is provided in connection with Intel® products. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Intel's Terms and Conditions of Sale for such products, Intel assumes no liability whatsoever, and Intel disclaims any express or implied warranty, relating to sale and/or use of Intel products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Intel products are not designed, intended or authorized for use in any medical, life saving, or life sustaining applications or for any other application in which the failure of the Intel product could create a situation where personal injury or death may occur. Intel may make changes to specifications and product descriptions at any time, without notice.

Intel server boards contain a number of high-density VLSI and power delivery components that need adequate airflow for cooling. Intel's own chassis are designed and tested to meet the intended thermal requirements of these components when the fully integrated system is used together. It is the responsibility of the system integrator that chooses not to use Intel developed server building blocks to consult vendor datasheets and operating parameters to determine the amount of airflow required for their specific application and environmental conditions. Intel Corporation can not be held responsible if components fail or the server board does not operate correctly when used outside any of their published operating or non-operating limits.

Intel, Intel Pentium, and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

* Other names and brands may be claimed as the property of others.

Copyright © 2004, Intel Corporation. All Rights Reserved.

Preface

About this Manual

Thank you for purchasing and using the Intel® Telco / Industrial Grade Server TIGPT1U.

This manual is written for system technicians who are responsible for troubleshooting, upgrading, and repairing this Telco / Industrial Grade Server. This document provides a brief overview of the features of the board/chassis, a list of accessories or other components you may need, troubleshooting information, and instructions on how to add and replace components on the Intel Telco / Industrial Grade Server TIGPT1U. For the latest version of this manual, refer to <http://support.intel.com/support/motherboards/server/TIGPT1U>.

Manual Organization

Chapter 1 provides a brief overview of the Telco / Industrial Grade Server TIGPT1U. In this chapter, you will find a list of the server board features, chassis features, photos of the product, and product diagrams to help you identify components and their locations.

Chapter 2 provides instructions on adding and replacing components. Use this chapter for step-by-step instructions and diagrams for installing or replacing components such as the memory, processor, front panel board, the battery, and other components.

Chapter 3 provides instructions on using the utilities that are shipped with the board or that may be required to update the system. This includes how to navigate through the BIOS Setup screens, how to perform a BIOS update, and how to reset the password or CMOS. Information about the specific BIOS settings and screens is available in the Intel® Server Board TIGPT1U Technical Product Specification. See “[Additional Information and Software](#)” for a link to the Technical Product Specification.

Chapter 4 provides troubleshooting information. In this chapter, you will find BIOS error messages and POST code messages. You will also find suggestions for performing troubleshooting activities to identify the source of a problem.

What Your Platform Includes

Your Telco / Industrial Grade Server TIGPT1U includes the following components:

- One Intel® Server Board TIGPT1U
- One 1U rack-mount chassis
- Two hard disk drive carriers
- One bracket for installing a CD ROM or DVD-ROM drive
- One 250 W SSI PFC nonredundant power supply
- Fans for cooling the processor, DIMMs, PCI slot and other internal components
- Two rear 40-mm fans in the power supply
- One processor air duct

Your Intel® Carrier Grade Server TIGPT1U comes with the following items pre-installed:

- Intel® Server Board
- Front panel board
- Midplane board
- Two hard drive drive carriers
- Front fan module and individual front fan
- Power supply with two rear fans
- Processor air duct
- Cables and connectors
- CD-ROM drive

See the Intel Telco / Industrial Grade Server TIGPT1U Hardware Reference Guide for initial installation instructions.

Product Accessories

You may need or want to purchase one or more of the following accessory items for your server:

- One Intel® Pentium® 4 processor: 3.0GHz with 512K of L2 cache and a 400MHz or an 800 MHz system bus
- One heat sink
- DDR266, DD333, or DDR400 memory DIMMs¹
- Hard disk drives (HDDs)
- PCI add-in card
- Rack mount kit
- Power cord (If not included with the platform. This product ships with a power cord in North America only.)

For information about which accessories, memory, processors, and third-party hardware have been tested and can be used with your board, and for ordering information for Intel products, see <http://support.intel.com/support/motherboards/server/TIGPT1U/compat.htm>.

¹ To run 400MHz memory at full speed requires an Intel Pentium 4 processor with an 800MHz system bus.

To run 333MHz memory at full speed requires an Intel Pentium 4 processor with a 533MHz system bus.

The 333MHz memory runs at 320MHz when using an Intel Pentium 4 processor with an 800MHz system bus

Additional Information and Software

If you need more information about this product or information about the accessories that can be used with this Telco / Industrial Grade Server, go to

<http://support.intel.com/support/motherboards/server/TIGPT1U/index.htm>

- In-depth technical information about the server board included with this Telco / Industrial Grade Server, including BIOS settings and chipset information
- The latest product information
- Accessories or other Intel server products
- Hardware (peripheral boards, adapter cards) and operating systems that have been tested with this product
- DIMMs that have been tested with this product
- The power budget for this product
- Software to manage your Intel Telco / Industrial Grade Server
- Diagnostics testing software
- Firmware and BIOS updates
- System drivers

Safety Information



WARNING

Before working with your server product, whether you are using this guide or any other resource as a reference, pay close attention to the safety instructions. You must adhere to the assembly instructions in this guide to ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components specified in this guide. Use of other products / components will void the UL listing and other regulatory approvals of the product and will most likely result in noncompliance with product regulations in the region(s) in which the product is sold.

Emissions Disclaimer

To ensure EMC compliance with your local regional rules and regulations, the final configuration of your end system product may require additional EMC compliance testing. For more information please contact your local Intel Representative.

See “[Regulatory and Integration Information](#)” for product Safety and EMC regulatory compliance information. This is an FCC Class B device.

Intended Uses

This product was evaluated as Information Technology Equipment (ITE), which may be installed in offices, schools, computer rooms, and similar commercial type locations. The suitability of this product for other product categories and environments (such as: medical, industrial, telecommunications, NEBS, residential, alarm systems, test equipment, etc.), other than an ITE application, may require further evaluation.

EMC Testing

Before computer integration, make sure that the chassis, power supply, and other modules have passed EMC testing using a server board with a microprocessor from the same family (or higher) and operating at the same (or higher) speed as the microprocessor used on this server board.



WARNING

Anchor the equipment rack: The equipment rack must be anchored to an unmovable support to prevent it from falling over when one or more servers are extended in front of the rack on slides. You must also consider the weight of any other device installed in the rack. A crush hazard exists should the rack tilt forward which could cause serious injury.

If AC power supplies are installed:

Mains AC power disconnect: The AC power cord(s) is considered the mains disconnect for the server and must be readily accessible when installed. If the individual server power cord(s) will not be readily accessible for disconnection then you are responsible for installing an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire rack, not just to the server(s).

Grounding the rack installation: To avoid the potential for an electrical shock hazard, you must include a third wire safety ground conductor with the rack installation. If the server power cord is plugged into an AC outlet that is part of the rack, then you must provide proper grounding for the rack itself. If the server power cord is plugged into a wall AC outlet, the safety ground conductor in the power cord provides proper grounding only for the server. You must provide additional, proper grounding for the rack and other devices installed in it.

Overcurrent protection: The server is designed for an AC line voltage source with up to 20 amperes of overcurrent protection per cord feed. If the power system for the equipment rack is installed on a branch circuit with more than 20 amperes of protection, you must provide supplemental protection for the server. The overall current rating of a server configured is less than 4 amperes.

If DC power supplies are installed:

Connection with a DC source should only be performed by trained service personnel. The server with DC input is to be installed in a Restricted Access Location in accordance with articles 110-16, 110-17, and 110-18 of the National Electric Code, ANSI/NFPA 70. The DC source must be electrically isolated by double or reinforced insulation from any hazardous AC source. The DC source must be capable of providing up to 300 Watts of continuous power per feed pair.

Main DC power disconnect: You are responsible for installing a properly rated DC power disconnect for the server system. This mains disconnect must be readily accessible, and it must be labeled as controlling power to the server. The circuit breaker of a centralized DC power system may be used as a disconnect device when easily accessible and should be rated no more than 10 amps.

Grounding the server: To avoid the potential for an electrical shock hazard, you must reliably connect an earth grounding conductor to the server. The earth grounding conductor must be a minimum 14AWG connected to the earth ground stud(s) on the rear of the server. The safety ground conductor should be connected to the chassis stud with a Listed closed two-hole crimp terminal with a maximum width of 0.25 inch. The nuts on the chassis earth ground studs should be installed with a 10 in/lbs torque. The safety ground conductor provides proper grounding only for the server. You must provide additional, proper grounding for the rack and other devices installed in it.

Overcurrent protection: Overcurrent protection circuit breakers must be provided as part of each host equipment rack and must be incorporated in the field wiring between the DC source and the server. The branch circuit protection shall be rated minimum 75Vdc, 10 A maximum per feed pair. If the DC power system for the equipment rack is installed with more than 10 amperes of protection, you must provide supplemental protection for the server. The overall current rating of a server configured is 8 amperes.



WARNING

Do not attempt to modify or use an AC power cordset that is not the exact type required. You must use a power cordset that meets the following criteria:

Rating: For U.S./Canada cords must be UL Listed/CSA Certified type SJT, 18-3 AWG. For outside U.S./Canada cords must be flexible harmonized (<HAR>) or VDE certified cord with 3 x 0.75 mm conductors rated 250 VAC.

Connector, wall outlet end: Cords must be terminated in grounding-type male plug designed for use in your region. The connector must have certification marks showing certification by an agency acceptable in your region and for U.S. must be Listed and rated 125% of overall current rating of the server.

Connector, server end: The connectors that plug into the AC receptacle on the server must be an approved IEC 320, sheet C13, type female connector.

Cord length and flexibility: Cords must be less than 4.5 meters (14.76 feet) long.



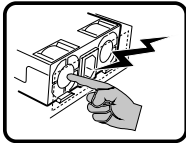
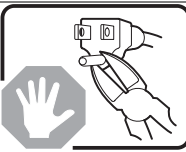
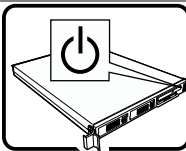

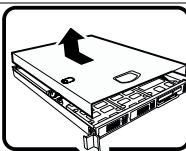
CAUTION

Temperature: The temperature, in which the server operates when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 40 °C (104 °F). Extreme fluctuations in temperature can cause a variety of problems in your server.

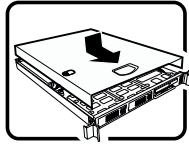
Ventilation: The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling. The rack must also include ventilation sufficient to exhaust a maximum of 1023 BTU's per hour for the server. The rack selected and the ventilation provided must be suitable to the environment in which the server will be used.

Safety Cautions

Read all caution and safety statements in this document before performing any of the instructions. See also *Intel Server Boards and Server Chassis Safety Information* on the Resource CD and/or at <http://support.intel.com/support/motherboards/server/safecert.htm>.

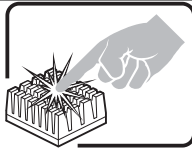
	<p>The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.</p>
	<p>Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC power cord for each supply.</p>
	<p>The power button on the system does not turn off system AC power. To remove AC power from the system, you must unplug each AC power cord from the wall outlet or power supply.</p> <p>The power cord(s) is considered the disconnect device to the main (AC) power. The socket outlet that the system plugs into shall be installed near the equipment and shall be easily accessible.</p>
	<p>SAFETY STEPS: Whenever you remove the chassis covers to access the inside of the system, follow these steps:</p> <ol style="list-style-type: none"> 1. Turn off all peripheral devices connected to the system. 2. Turn off the system by pressing the power button. 3. Unplug all AC power cords from the system or from wall outlets. 4. Label and disconnect all cables connected to I/O connectors or ports on the back of the system. 5. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground of the system—any unpainted metal surface—when handling components. 6. Do not operate the system with the chassis covers removed.
	<p>After you have completed the six SAFETY steps above, you can remove the system covers. To do this:</p> <ol style="list-style-type: none"> 1. Unlock and remove the padlock from the back of the system if a padlock has been installed. 2. Remove and save all screws from the covers. 3. Remove the covers.

continued

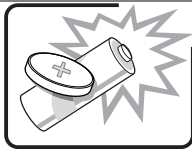


For proper cooling and airflow, always reinstall the chassis covers before turning on the system. Operating the system without the covers in place can damage system parts. To install the covers:

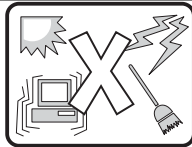
1. Check first to make sure you have not left loose tools or parts inside the system.
2. Check that cables, add-in boards, and other components are properly installed.
3. Attach the covers to the chassis with the screws removed earlier, and tighten them firmly.
4. Insert and lock the padlock to the system to prevent unauthorized access inside the system.
5. Connect all external cables and the AC power cord(s) to the system.



A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.



Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Dispose of used batteries according to manufacturer's instructions.

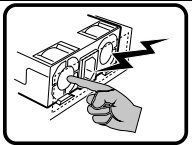
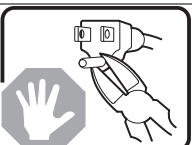
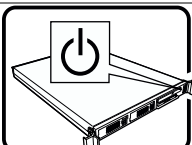
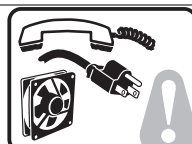
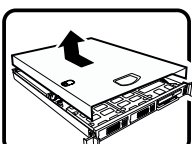


The system is designed to operate in a typical office environment. Choose a site that is:

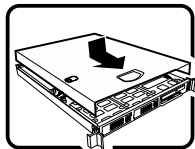
- Clean and free of airborne particles (other than normal room dust).
- Well ventilated and away from sources of heat including direct sunlight.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cord(s), because they serve as the product's main power disconnect.

Wichtige Sicherheitshinweise

Lesen Sie zunächst sämtliche Warn- und Sicherheitshinweise in diesem Dokument, bevor Sie eine der Anweisungen ausführen. Beachten Sie hierzu auch die Sicherheitshinweise zu Intel-Serverplatinen und -Servergehäusen auf der Ressourcen-CD oder unter <http://support.intel.com/support/motherboards/server/safecert.htm>.

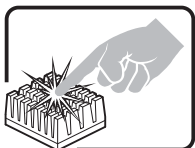
	<p>Benutzer können am Netzgerät dieses Produkts keine Reparaturen vornehmen. Das Produkt enthält möglicherweise mehrere Netzgeräte. Wartungsarbeiten müssen von qualifizierten Technikern ausgeführt werden.</p>
	<p>Versuchen Sie nicht, das mitgelieferte Netzkabel zu ändern oder zu verwenden, wenn es sich nicht genau um den erforderlichen Typ handelt. Ein Produkt mit mehreren Netzgeräten hat für jedes Netzgerät ein eigenes Netzkabel.</p>
	<p>Der Wechselstrom des Systems wird durch den Ein-/Aus-Schalter für Gleichstrom nicht ausgeschaltet. Ziehen Sie jedes Wechselstrom-Netzkabel aus der Steckdose bzw. dem Netzgerät, um den Stromanschluß des Systems zu unterbrechen.</p>
	<p>SICHERHEISSCHRIFFEN: Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten:</p> <ol style="list-style-type: none"> 1. Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus. 2. Schalten Sie das System mit dem Hauptschalter aus. 3. Ziehen Sie den Stromanschlußstecker Ihres Systems aus der Steckdose. 4. Auf der Rückseite des Systems beschriften und ziehen Sie alle Anschlußkabel von den I/O Anschlüssen oder Ports ab. 5. Tragen Sie ein geerdetes Antistatik Gelenkband, um elektrostatische Ladungen (ESD) über blanke Metallstellen bei der Handhabung der Komponenten zu vermeiden. 6. Schalten Sie das System niemals ohne ordnungsgemäß montiertes Gehäuse ein.
	<p>Nachdem Sie die oben erwähnten ersten sechs SICHERHEITSSCHRITTE durchgeführt haben, können Sie die Abdeckung abnehmen, indem Sie:</p> <ol style="list-style-type: none"> 1. Öffnen und entfernen Sie die Verschlusseinrichtung (Padlock) auf der Rückseite des Systems, falls eine Verschlusseinrichtung installiert ist. 2. Entfernen Sie alle Schrauben der Gehäuseabdeckung. 3. Nehmen Sie die Abdeckung ab.

Fortsetzung

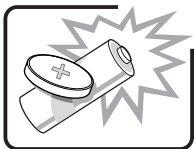


Zur ordnungsgemäßen Kühlung und Lüftung muß die Gehäuseabdeckung immer wieder vor dem Einschalten installiert werden. Ein Betrieb des Systems ohne angebrachte Abdeckung kann Ihrem System oder Teile darin beschädigen. Um die Abdeckung wieder anzubringen:

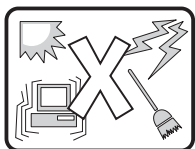
1. Vergewissern Sie sich, daß Sie keine Werkzeuge oder Teile im Innern des Systems zurückgelassen haben.
2. Überprüfen Sie alle Kabel, Zusatzkarten und andere Komponenten auf ordnungsgemäßen Sitz und Installation.
3. Bringen Sie die Abdeckungen wieder am Gehäuse an, indem Sie die zuvor gelösten Schrauben wieder anbringen. Ziehen Sie diese gut an.
4. Bringen Sie die Verschußeinrichtung (Padlock) wieder an und schließen Sie diese, um ein unerlaubtes Öffnen des Systems zu verhindern.
5. Schließen Sie alle externen Kabel und den AC Stromanschlußstecker Ihres Systems wieder an.



Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.



Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie verbrauchte Batterien den Anweisungen des Herstellers entsprechend.



Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte:

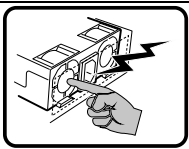
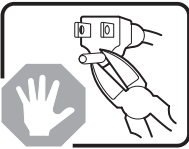
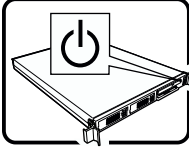

- sauber und staubfrei sein (Hausstaub ausgenommen);
- gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung);
- keinen Erschütterungen ausgesetzt sein;
- keine starken, von elektrischen Geräten erzeugten elektromagnetischen Felder aufweisen;
- in Regionen, in denen elektrische Stürme auftreten, mit einem Überspannungsschutzgerät verbunden sein; während eines elektrischen Sturms sollte keine Verbindung der Telekommunikationsleitungen mit dem Modem bestehen;
- mit einer geerdeten Wechselstromsteckdose ausgerüstet sein;
- über ausreichend Platz verfügen, um Zugang zu den Netzkabeln zu gewährleisten, da der Stromanschluß des Produkts hauptsächlich über die Kabel unterbrochen wird.

重要安全指导

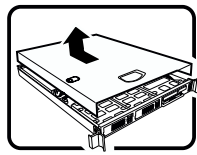
在执行任何指令之前，请阅读本文档中的所有注意事项及安全声明。参见 Resource CD（资源光盘）和/或 <http://support.intel.com/support/motherboards/server/safecert.htm> 上的 *Intel Server Boards and Server Chassis Safety Information*（《Intel 服务器主板与服务器机箱安全信息》）。

Consignes de sécurité

Lisez attention toutes les consignes de sécurité et les mises en garde indiquées dans ce document avant de suivre toute instruction. Consultez *Intel Server Boards and Server Chassis Safety Information* sur le CD Resource CD ou bien rendez-vous sur le site <http://support.intel.com/support/motherboards/server/safecert.htm>.

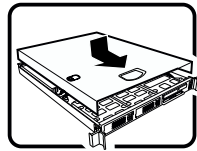
	<p>Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.</p>
	<p>Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.</p>
	<p>Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.</p>
	<p>CONSIGNES DE SÉCURITÉ -Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes:</p> <ol style="list-style-type: none"> 1. Mettez hors tension tous les périphériques connectés au système. 2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir). 3. Débranchez tous les cordons d'alimentation c.a. du système et des prises murales. 4. Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système. 5. Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier). 6. Ne faites pas fonctionner le système tandis que le boîtier est ouvert.

suite



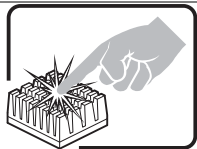
Une fois TOUTES les étapes précédentes accomplies, vous pouvez retirer les panneaux du système. Procédez comme suit:

1. Si un cadenas a été installé sur à l'arrière du système, déverrouillez-le et retirez-le.
2. Retirez toutes les vis des panneaux et mettez-les dans un endroit sûr.
3. Retirez les panneaux.

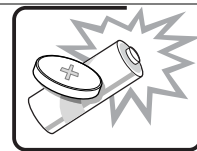


Afin de permettre le refroidissement et l'aération du système, réinstallez toujours les panneaux du boîtier avant de mettre le système sous tension. Le fonctionnement du système en l'absence des panneaux risque d'endommager ses pièces. Pour installer les panneaux, procédez comme suit:

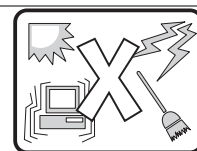
1. Assurez-vous de ne pas avoir oublié d'outils ou de pièces démontées dans le système.
2. Assurez-vous que les câbles, les cartes d'extension et les autres composants sont bien installés.
3. Revissez solidement les panneaux du boîtier avec les vis retirées plus tôt.
4. Remettez le cadenas en place et verrouillez-le afin de prévenir tout accès non autorisé à l'intérieur du système.
5. Rebranchez tous les cordons d'alimentation c. a. et câbles externes au système.



Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.



Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.

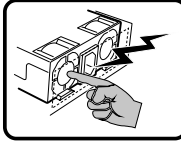
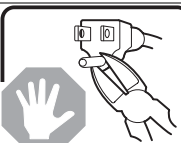
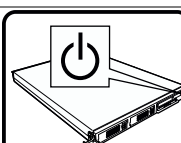




Le système a été conçu pour fonctionner dans un cadre de travail normal. L'emplacement choisi doit être:

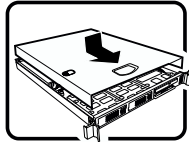
- Propre et dépourvu de poussière en suspension (sauf la poussière normale).
- Bien aéré et loin des sources de chaleur, y compris du soleil direct.
- A l'abri des chocs et des sources de vibrations.
- Isolé de forts champs électromagnétiques géenérés par des appareils électriques.
- Dans les régions sujettes aux orages magnétiques il est recomandé de brancher votre système à un supresseur de surtension, et de débrancher toutes les lignes de télécommunications de votre modem durant un orage.
- Muni d'une prise murale correctement mise à la terre.
- Suffisamment spacieux pour vous permettre d'accéder aux câbles d'alimentation (ceux-ci étant le seul moyen de mettre le système hors tension).

Instrucciones de seguridad importantes

Lea todas las declaraciones de seguridad y precaución de este documento antes de realizar cualquiera de las instrucciones. Vea *Intel Server Boards and Server Chassis Safety Information* en el CD Resource y/o en <http://support.intel.com/support/motherboards/server/safecert.htm>.

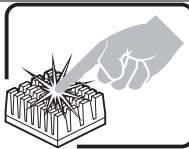
	<p>El usuario debe abstenerse de manipular los componentes de la fuente de alimentación de este producto, cuya reparación debe dejarse exclusivamente en manos de personal técnico especializado. Puede que este producto disponga de más de una fuente de alimentación.</p>
	<p>No intente modificar ni usar el cable de alimentación de corriente alterna, si no corresponde exactamente con el tipo requerido. El número de cables suministrados se corresponden con el número de fuentes de alimentación de corriente alterna que tenga el producto.</p>
	<p>Nótese que el interruptor activado/desactivado en el panel frontal no desconecta la corriente alterna del sistema. Para desconectarla, deberá desenchufar todos los cables de corriente alterna de la pared o desconectar la fuente de alimentación.</p>
	<p>INSTRUCCIONES DE SEGURIDAD: Cuando extraiga la tapa del chasis para acceder al interior del sistema, siga las siguientes instrucciones:</p> <ol style="list-style-type: none"> 1. Apague todos los dispositivos periféricos conectados al sistema. 2. Apague el sistema presionando el interruptor encendido/apagado. 3. Desconecte todos los cables de alimentación CA del sistema o de las tomas de corriente alterna. 4. Identifique y desconecte todos los cables enchufados a los conectores E/S o a los puertos situados en la parte posterior del sistema. 5. Cuando manipule los componentes, es importante protegerse contra la descarga electrostática (ESD). Puede hacerlo si utiliza una muñequera antiestática sujeta a la toma de tierra del chasis — o a cualquier tipo de superficie de metal sin pintar. 6. No ponga en marcha el sistema si se han extraído las tapas del chasis.
	<p>Después de completar las seis instrucciones de SEGURIDAD mencionadas, ya puede extraer las tapas del sistema. Para ello:</p> <ol style="list-style-type: none"> 1. Desbloquee y extraiga el bloqueo de seguridad de la parte posterior del sistema, si se ha instalado uno. 2. Extraiga y guarde todos los tornillos de las tapas. 3. Extraiga las tapas.

continúa

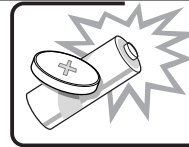


Para obtener un enfriamiento y un flujo de aire adecuados, reinstale siempre las tapas del chasis antes de poner en marcha el sistema. Si pone en funcionamiento el sistema sin las tapas bien colocadas puede dañar los componentes del sistema. Para instalar las tapas:

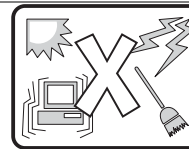
1. Asegúrese primero de no haber dejado herramientas o componentes sueltos dentro del sistema.
2. Compruebe que los cables, las placas adicionales y otros componentes se hayan instalado correctamente.
3. Incorpore las tapas al chasis mediante los tornillos extraídos anteriormente, tensándolos firmemente.
4. Inserte el bloqueo de seguridad en el sistema y bloquéelo para impedir que pueda accederse al mismo sin autorización.
5. Conecte todos los cables externos y los cables de alimentación CA al sistema.



Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.



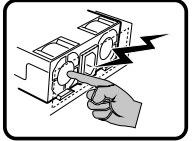
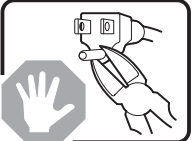
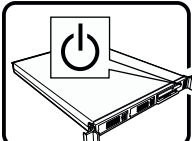

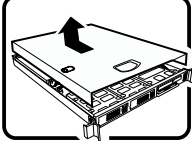
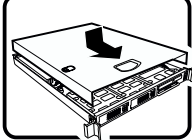
Existe peligro de explosión si la pila no se cambia de forma adecuada. Utilice solamente pilas iguales o del mismo tipo que las recomendadas por el fabricante del equipo. Para deshacerse de las pilas usadas, siga igualmente las instrucciones del fabricante.



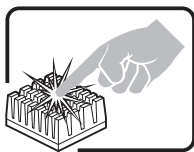
El sistema está diseñado para funcionar en un entorno de trabajo normal. Escoja un lugar:

- Limpio y libre de partículas en suspensión (salvo el polvo normal).
- Bien ventilado y alejado de fuentes de calor, incluida la luz solar directa.
- Alejado de fuentes de vibración.
- Aislado de campos electromagnéticos fuertes producidos por dispositivos eléctricos.
- En regiones con frecuentes tormentas eléctricas, se recomienda conectar su sistema a un eliminador de sobrevoltage y desconectar el módem de las líneas de telecomunicación durante las tormentas.
- Provisto de una toma de tierra correctamente instalada.
- Provisto de espacio suficiente como para acceder a los cables de alimentación, ya que éstos hacen de medio principal de desconexión del sistema.

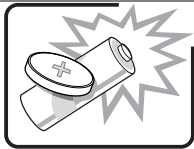
AVVERTENZA: Italiano

	Rivolgersi ad un tecnico specializzato per la riparazione dei componenti dell'alimentazione di questo prodotto. È possibile che il prodotto disponga di più fonti di alimentazione.
	Non modificare o utilizzare il cavo di alimentazione in c.a. fornito dal produttore, se non corrisponde esattamente al tipo richiesto. Ad ogni fonte di alimentazione corrisponde un cavo di alimentazione in c.a. separato.
	L'interruttore attivato/disattivato nel pannello anteriore non interrompe l'alimentazione in c.a. del sistema. Per interromperla, è necessario scollegare tutti i cavi di alimentazione in c.a. dalle prese a muro o dall'alimentazione di corrente.
	<p>PASSI DI SICUREZZA: Qualora si rimuovano le coperture del telaio per accedere all'interno del sistema, seguire i seguenti passi:</p> <ol style="list-style-type: none"> 1. Spegnerne tutti i dispositivi periferici collegati al sistema. 2. Spegnerne il sistema, usando il pulsante spento/acceso dell'interruttore del sistema. 3. Togliere tutte le spine dei cavi del sistema dalle prese elettriche. 4. Identificare e sconnettere tutti i cavi attaccati ai collegamenti I/O od alle prese installate sul retro del sistema. 5. Qualora si tocchino i componenti, proteggersi dallo scarico elettrostatico (SES), portando un cinghia anti-statica da polso che è attaccata alla presa a terra del telaio del sistema – qualsiasi superficie non dipinta – . 6. Non far operare il sistema quando il telaio è senza le coperture.
	<p>Dopo aver seguito i sei passi di SICUREZZA sopracitati, togliere le coperture del telaio del sistema come segue:</p> <ol style="list-style-type: none"> 1. Aprire e rimuovere il lucchetto dal retro del sistema qualora ve ne fosse uno installato. 2. Togliere e mettere in un posto sicuro tutte le viti delle coperture. 3. Togliere le coperture.
	<p>Per il giusto flusso dell'aria e raffreddamento del sistema, rimettere sempre le coperture del telaio prima di riaccendere il sistema. Operare il sistema senza le coperture al loro proprio posto potrebbe danneggiare i componenti del sistema. Per rimettere le coperture del telaio:</p> <ol style="list-style-type: none"> 1. Controllare prima che non si siano lasciati degli attrezzi o dei componenti dentro il sistema. 2. Controllare che i cavi, dei supporti aggiuntivi ed altri componenti siano stati installati appropriatamente. 3. Attaccare le coperture al telaio con le viti tolte in precedenza e avvitarle strettamente. 4. Inserire e chiudere a chiave il lucchetto sul retro del sistema per impedire l'accesso non autorizzato al sistema. 5. Ricollegare tutti i cavi esterni e le prolunghe AC del sistema.

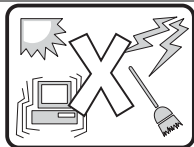
continua



Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.



Esiste il pericolo di un'esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.



Il sistema è progettato per funzionare in un ambiente di lavoro tipo. Scegliere una postazione che sia:

- Pulita e libera da particelle in sospensione (a parte la normale polvere presente nell'ambiente).
- Ben ventilata e lontana da fonti di calore, compresa la luce solare diretta.
- Al riparo da urti e lontana da fonti di vibrazione.
- Isolata dai forti campi magnetici prodotti da dispositivi elettrici.
- In aree soggette a temporali, è consigliabile collegare il sistema ad un limitatore di corrente. In caso di temporali, scollegare le linee di comunicazione dal modem.
- Dotata di una presa a muro correttamente installata.
- Dotata di spazio sufficiente ad accedere ai cavi di alimentazione, i quali rappresentano il mezzo principale di scollegamento del sistema.

Contents

Preface	iii
1 Telco / Industrial Grade Server TIGPT1U Features	25
Server Platform Components	27
Server Platform Back Panel	28
Server Platform Front Panel	29
Server Platform Peripherals	30
Server Board Connector and Component Locations	31
Configuration Jumpers	32
Hard Disk Drives	33
Power Supply	33
System Cooling	34
Hardware Requirements	34
2 Platform Installations and Upgrades	37
Before You Begin	37
Tools and Supplies Needed	37
System References	37
Removing and Installing the Chassis Cover	38
Removing the Chassis Cover	38
Installing the Chassis Cover	38
Removing and Installing the Front Bezel	39
Removing the Front Bezel	39
Installing the Front Bezel	39
Removing and Installing the Processor Air Duct	39
Removing the Processor Air Duct	39
Installing the Processor Air Duct	39
Installing and Removing Memory DIMMs	40
Installing DIMMs	40
Removing DIMMs	41
Replacing the Processor	41
Removing the Processor	42
Installing the Processor	42
Installing or Removing a Hard Drive	45
Installing a Hard Drive	45
Removing a Hard Drive	47
Replacing the CD-ROM Drive	48
Removing the CD-ROM Drive	48
Installing the CD-ROM / DVD-ROM Drive	49
Installing or Removing a PCI Add-in Card	51
Installing a PCI Add-in Card	51
Removing a PCI Add-in Card	53
Replacing the Power Supply	54
Removing the Power Supply	54
Installing the Power Supply	55

Replacing the Front Fan Module.....	56
Removing the Front Fan Module.....	56
Installing the Front Fan Module.....	57
Replacing the Single Front Fan.....	58
Removing the Single Front Fan.....	58
Installing the Single Front Fan.....	59
Replacing the Mini-Bezel	59
Replacing the Extended Front Panel Board.....	60
Removing the Extended Front Panel Board.....	60
Replacing the Light Pipe	61
Installing the Extended Front Panel Board.....	62
Replacing the PCI Riser Board	63
Replacing the Power Distribution Board	64
Removing the Power Distribution Board	64
Installing the Power Distribution Board	64
Replacing the Midplane Board	65
Removing the Midplane Board	65
Installing the Midplane Board	66
Replacing the Server Board	67
Removing the Server Board	67
Installing the Server Board	68
Replacing the Backup Battery.....	70
Installing or Replacing the Power Cord.....	72
Installing the Platform into a Rack.....	72
Equipment Rack Precautions.....	72
3 Server Utilities	75
Upgrading the BIOS	76
Preparing for the Upgrade.....	76
Upgrading the BIOS	77
Recovering the BIOS	78
Recovering the BIOS with the Crisis Recovery Diskette	79
Clearing the Password.....	79
Clearing the CMOS.....	80
4 Troubleshooting	81
Resetting the System.....	81
Problems following Initial System Installation	82
First Steps Checklist.....	82
Hardware Diagnostic Testing.....	83
Verifying Proper Operation of Key System Lights	83
Confirming Loading of the Operating System	84
Specific Problems and Corrective Actions	84
Power Light Does Not Light.....	84
No Characters Appear on Screen	85
Characters Are Distorted or Incorrect.....	85
System Cooling Fans Do Not Rotate Properly	86
CD-ROM Drive or DVD-ROM Drive Activity Light Does Not Light	86
Cannot Connect to a Server.....	86

Contents

Problems with Network.....	87
System Boots when Installing PCI Card.....	87
Problems with Newly Installed Application Software.....	88
Problems with Application Software that Ran Correctly Earlier.....	88
Devices are not Recognized under Device Manager (Windows* Operating System)..	89
Hard Drive(s) are not Recognized.....	89
Bootable CD-ROM Is Not Detected.....	89
LED Information	90
BIOS Error Messages	91
BIOS POST Beep Codes	92
BIOS Recovery Beep Codes.....	93
Boot Block POST Progress Codes.....	93
POST Progress Codes.....	94
Regulatory and Certification Information	99
Product Regulatory Compliance	99
Product Safety Compliance.....	99
Product EMC Compliance – Class A Compliance.....	99
Certifications / Registrations / Declarations.....	100
Product Regulatory Compliance Markings.....	100
Electromagnetic Compatibility Notices.....	101
FCC (USA)	101
Industry Canada (ICES-003).....	102
Europe (CE Declaration of Conformity).....	102
VCCI (Japan).....	103
BSMI (Taiwan).....	103
Korean RRL Compliance.....	103
Regulated Specified Components.....	104
Getting Help	105
Intel® Server Issue Report Form.....	107
Warranty	111
Limited Warranty for Intel® Chassis Subassembly Products.....	111
Extent of Limited Warranty.....	111
Warranty Limitations and Exclusions	112
Limitations of Liability	112
How to Obtain Warranty Service.....	113
Telephone Support.....	113
Returning a Defective Product	114

Figures

Figure 1. Intel® Telco / Industrial Grade Server Platform TIGPT1U	25
Figure 2. System Components.....	27
Figure 3. Platform Back.....	28
Figure 4. Front of Server Platform.....	29
Figure 5. Front Panel Buttons and LEDs	30
Figure 6. Optional Peripheral CD-ROM or DVD-ROM Drive.....	30
Figure 7. Intel Server Platform TIGPT1U Board Diagram.....	31
Figure 8. Configuration Jumper Location	32
Figure 9. Installing Memory DIMMs	40
Figure 10. Removing Heat Sink	42
Figure 11. Open the Processor Socket Lever	43
Figure 12. Installing the Processor in the Processor Socket.....	43
Figure 13. Close Processor Socket Lever.....	43
Figure 14. Removing Covering from Heat Sink TIM	44
Figure 15. Installing Heat Sink	44
Figure 16. Removing Hard Drive Carrier from Chassis.....	45
Figure 17. Attaching a Hard Disk Drive to a Carrier.....	46
Figure 18. Inserting Hard Disk Drive Assembly into Chassis.....	46
Figure 19. Removing CD-ROM Drive Assembly from Chassis	48
Figure 20. Attaching CD-ROM Drive or DVD-ROM Drive to Bracket.....	49
Figure 21. Install CD-ROM Drive or DVD-ROM Drive Assembly into Chassis	50
Figure 22. Removing Riser from Chassis	51
Figure 23. Installing PCI Card into Riser.....	52
Figure 24. Removing PCI Card	53
Figure 25. Removing the Power Supply.....	54
Figure 26. Installing the Power Supply.....	55
Figure 27. Removing the Front Fan Module	56
Figure 28. Installing the Front Fan Module	57
Figure 29. Removing Single Front Fan	58
Figure 30. Installing Single Front Fan	59
Figure 31. Replacing the Battery.....	71

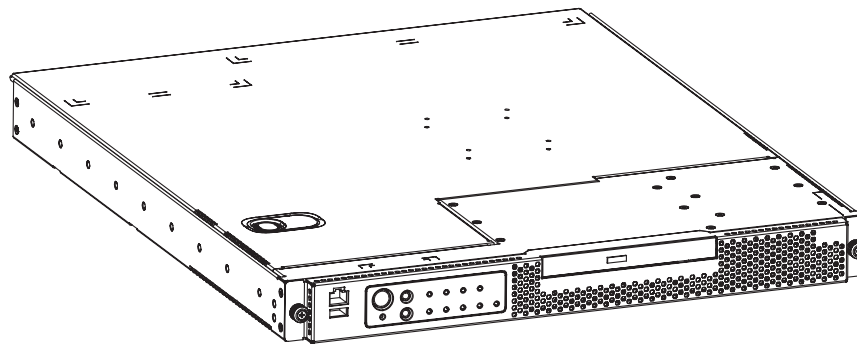
Tables

Table 1.	Server Platform Features	25
Table 2.	NIC LEDs.....	28
Table 3.	Configuration Jumper [J1D1].....	32
Table 4.	Keyboard Commands.....	75
Table 5.	BIOS Error Messages.....	91
Table 6.	Beep Codes.....	92
Table 7.	BIOS Recovery Beep Codes.....	93
Table 8.	Boot Block POST Progress Codes.....	93
Table 9.	POST Progress Codes	94
Table 8.	Product Certification Markings.....	100

1 Telco / Industrial Grade Server TIGPT1U Features

This chapter briefly describes the main features of the Intel® Telco / Industrial Grade Server Platform TIGPT1U. This chapter provides a diagram of the product, a list of their server features, and diagrams showing the location of important components and connections on the server platform.

The Telco / Industrial Grade Server TIGPT1U is shown in the following diagram.



TP00739

Figure 1. Intel® Telco / Industrial Grade Server Platform TIGPT1U

Table 1 summarizes the major features of the server platform.

Table 1. Server Platform Features

Feature	Description
Processors	Support for an Intel® Pentium® 4 processor in an uPGA478 package: 3.0GHz with an 400/533/800 MHz front side bus and 512K of L2 cache
Memory	<ul style="list-style-type: none"> ▪ Four 184-pin DDR SDRAM Dual Inline Memory Module (DIMM) sockets ▪ Support for up to 2 GB Unbuffered ECC system memory ▪ Support for single-sided or double-sided DIMMs (DDR333 or DDR400)²
Chipset	Intel® 827210 chipset, consisting of: <ul style="list-style-type: none"> ▪ Intel® 827210 Memory Controller Hub (MCH) ▪ Intel® 6300ESB I/O Controller Hub (ICH) ▪ Intel® 82802AC 8 Megabit Firmware Hub (FWH)

Continued

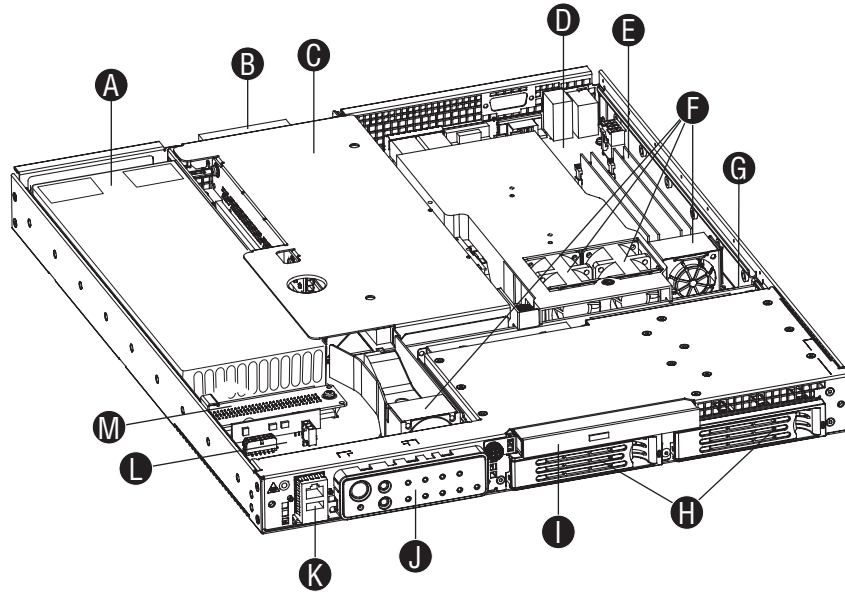
² To run 400MHz memory at full speed requires an Intel Pentium 4 processor with an 800MHz system bus. To run 333MHz memory at full speed requires an Intel Pentium 4 processor with a 533MHz system bus. The 333MHz memory runs at 320MHz when using an Intel Pentium 4 processor with an 800MHz system bus.

Server Platform Features

Table 1. Server Platform Features (continued)

Feature	Description
I/O Control	Winbond* W83627HF-AW LPC Bus I/O controller chip
Hard Drives	<ul style="list-style-type: none"> ▪ Support for two hot-swap Ultra320 SCSI hard drives
RAID	<ul style="list-style-type: none"> ▪ Integrated HostRAID* for RAID level 1 capability with two SCSI hard disk drives.
PCI	One PCI riser slot / PCI adapter assembly supporting one full-height / full length PCI-X 64-bit, 66MHz PCI adapter card
Video	Integrated ATI* RAGE XL video controller with 8 MB of SDRAM
Peripheral Interfaces	<ul style="list-style-type: none"> ▪ Three external USB 2.0 ports on the back panel with an additional internal header, which provides one additional USB port on the front panel (four total USB 2.0 ports) ▪ One serial port and one serial header ▪ Support for one CD-ROM or DVD-ROM drive ▪ PS/2* keyboard and mouse ports
LAN	<ul style="list-style-type: none"> ▪ Intel® 82547EI Platform LAN Connect (PLC) devices for 10/100/1000 Mbits/sec Ethernet LAN connectivity
Expansion Capabilities	One low profile PCI-X 64-bit PCI slot available by using riser
Fans	<ul style="list-style-type: none"> ▪ Two 40x48mm fans ▪ Two 40x28mm fan ▪ Two fans in power supply
Form Factor	<ul style="list-style-type: none"> ▪ 1U rack-mount server. ▪ 1.75 inches high x 20 inches deep.
BIOS	Intel/AMI BIOS with support for: <ul style="list-style-type: none"> ▪ Advanced Configuration and Power Interface (ACPI) ▪ 8 megabit symmetrical flash memory ▪ Support for SMBIOS
Power Supply	One 250W power supply with options for for AC input or DC input.
Power Management	Support for ACPI: <ul style="list-style-type: none"> ▪ Suspend to RAM (STR) ▪ Wake on USB, PCI, RS-232, PS/2, LAN, and front panel
Server Management	Intel® Server Management 5.8 support <ul style="list-style-type: none"> ▪ Telco Alarm Manager (TAM)

Server Platform Components



TP00734

- A. Power supply
- B. PCI card bracket
- C. Riser card assembly
- D. Intel Server Board SE7210TP1-E
- E. Memory DIMMs
- F. System Fans
- G. Midplane System Board
- H. SCSI Hard Disk Drive Carriers
- I. Peripheral Bay (CD-ROM or DVD-ROM drive)
- J. Front Panel LEDs and Switches
- K. COM2/USB Front Panel Connectors
- L. Extended Front Panel System Board
- M. Power Interconnect System Board

Figure 2. System Components

Server Platform Back Panel

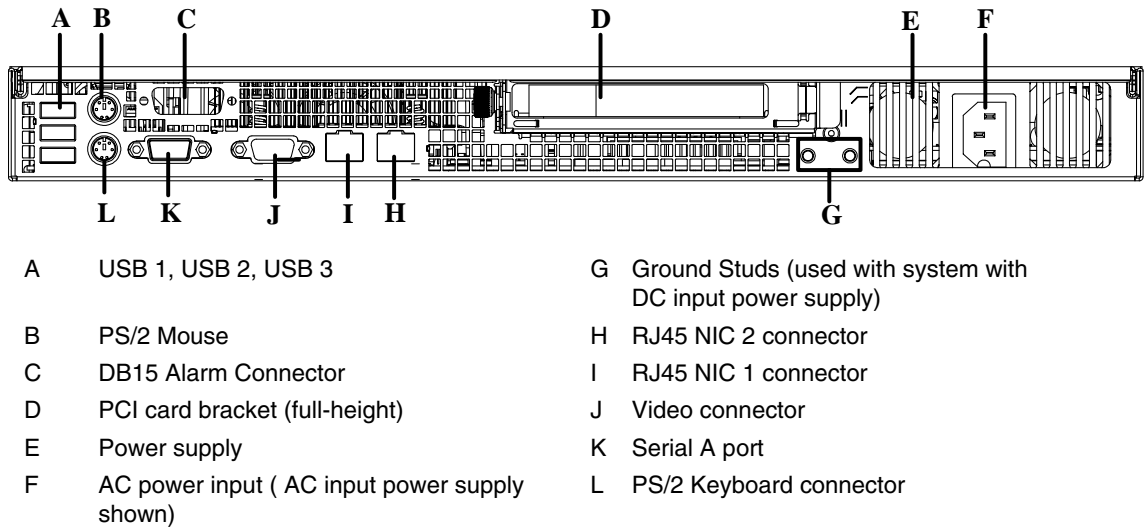


Figure 3. Platform Back

The NIC LEDs at the right and left of each NIC provide the following information.

Table 2. NIC LEDs

NIC	LED Color	LED State	Description
NIC1 / NIC2 (Gigabit)	Left LED	Off	No network connection
		Solid Amber	Network connection in place
		Blinking Amber	Transmit/receive activity
	Right LED	Off	10 Mbps connection (if left LED is on or blinking)
		Solid Amber	100 Mbps connection
		Solid Green	1000 Mbps connection

Server Platform Front Panel

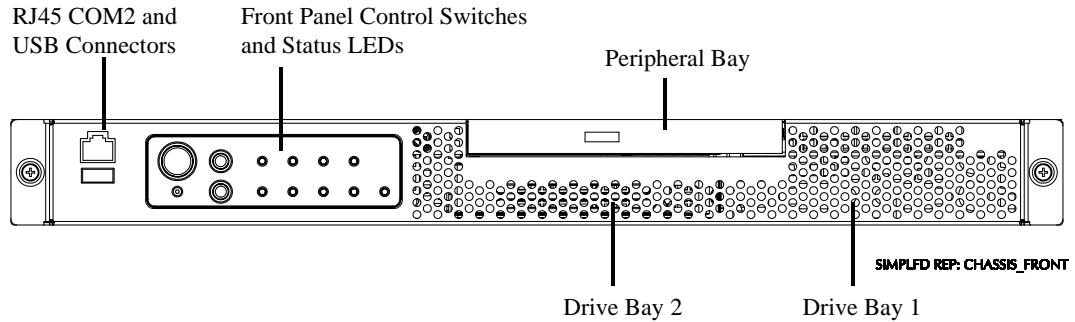
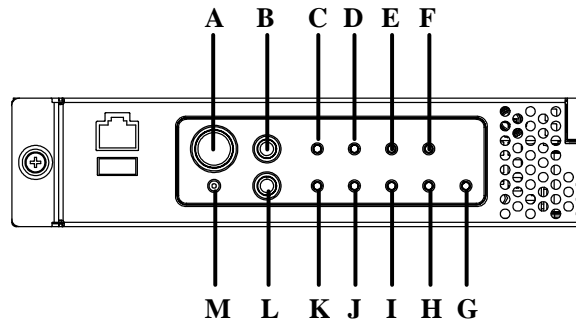


Figure 4. Front of Server Platform



Front Panel Buttons		
A	Power button	Toggles the system power
B	Reset button	Resets the system
L	ID button	Toggles system ID LED
M	NMI button	Assert NMI to baseboard
Front Panel LEDs		
C	Critical (amber)	When continuously lit, indicates the presence of a Critical System Fault. A critical system fault is an error or event that is detected by the system with a fatal impact to the system. In this case, the system cannot continue to operate. An example is the loss of a large section of memory that renders the system not operational. The front panel critical alarm relay will be engaged.
D	Major (amber)	When continuously lit, indicates the presence of a Major System Fault. A major system fault is an error or event that is detected by the system that has discernable impact to system operation. In this case, the system can continue to operate but in a “degraded” fashion (reduced performance or loss of non-fatal feature reduction). An example is the loss of one of two mirrored disks. The front panel major alarm relay will be engaged.

Continued

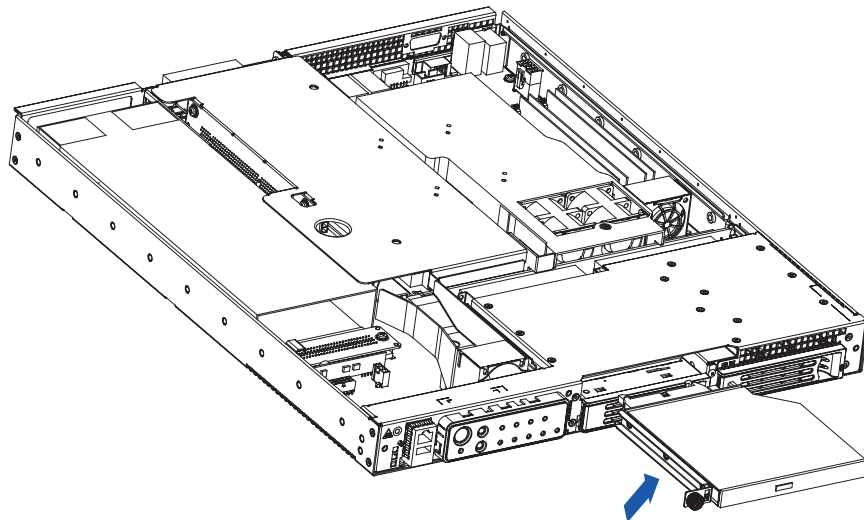
Server Platform Features

Front Panel LEDs (cont)		
E	Minor (amber)	When continuously lit, indicates the presence of a Minor System Fault. A minor system fault is an error or event that is detected by the system but has little impact to actual system operation. An example is a correctable ECC error. The front panel minor alarm relay will be engaged.
F	Power (amber)	When continuously lit, indicates the presence of a Power System Fault. The front panel power alarm relay will be engaged.
G	Disk 0 Activity/Fault LED (green/amber)	Indicates disk 0 SCSI hard drive activity when green, or a disk 0 SCSI hard drive fault when amber.
H	Disk 1 Activity/Fault LED (green/amber)	Indicates disk 1 SCSI hard drive activity when green, or a disk 1 SCSI hard drive fault when amber.
I	Main power LED (green)	When continuously lit, indicates the presence of DC power in the server. The LED goes out when the power is turned off or if the power source is disrupted.
J	NIC activity LED (green)	Indicates activity on either NIC.
K	System ID LED (white)	Continuously lit when activated by either a software command or by the front panel ID button.

Figure 5. Front Panel Buttons and LEDs

Server Platform Peripherals

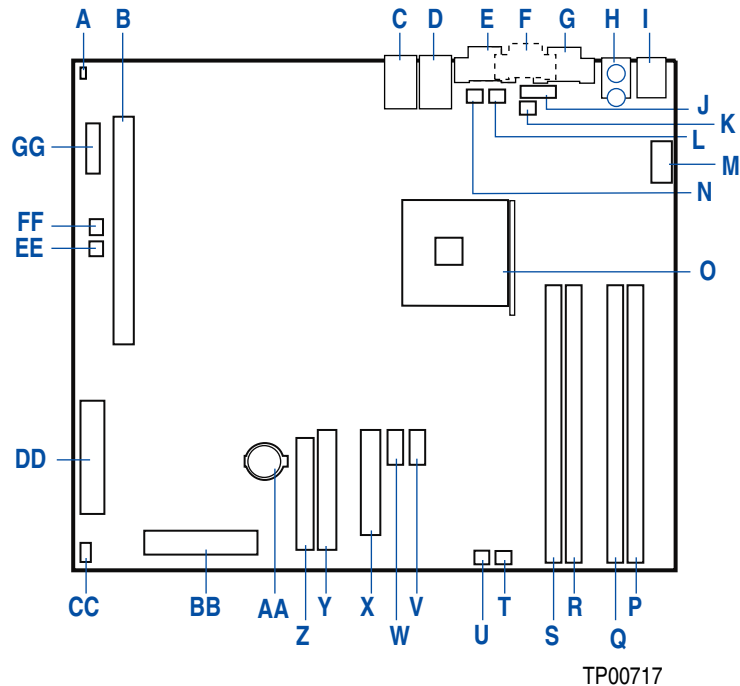
The platform provides for a peripheral location to install either a CD-ROM or a DVD-ROM drive. The platform comes with a CD-ROM drive installed. For information on replacing the CD-ROM drive, see [“Replacing the CD-ROM Drive.”](#)



TP00743

Figure 6. Optional Peripheral CD-ROM or DVD-ROM Drive

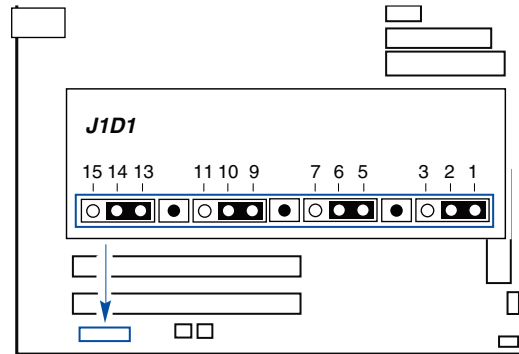
Server Board Connector and Component Locations



- | | | |
|----------------------------------------|----------------------------|--------------------------------|
| A. Chassis Intrusion Header (not used) | L. System Fan 3 Header | W. Auxiliary Power Connector |
| B. PCI-X 64/66 Slot | M. 12V CPU Power Connector | X. Main Power Connector |
| C. NIC 2 (10/100/1000Mb) | N. System Fan 4 Header | Y. Primary IDE Connector |
| D. NIC 1 (10/100/1000Mb) | O. Processor Socket | Z. Floppy Connector (not used) |
| E. VGA Connector | P. DIMM Socket 2B | AA. Battery |
| F. DB15 Alarm Connector | Q. DIMM Socket 2A | BB. Front Panel Connector |
| G. Serial Port A Connector | R. DIMM Socket 1B | CC. SCSI LED Header |
| H. PS/2 Keyboard/Mouse Connector | S. DIMM Socket 1A | DD. SCSI Connector |
| I. USB Back Panel Connector | T. System Fan 2 Header | EE. System Fan 6 Header |
| J. Serial Port B Connector | U. System Fan 1 Header | FF. System Fan 5 Header |
| K. Processor Fan Header (not used) | V. Front Panel USB Header | GG. Jumper Block |

Figure 7. Intel Server Platform TIGPT1U Board Diagram

Configuration Jumpers



TP00630

Figure 8. Configuration Jumper Location

Table 3. Configuration Jumper [J1D1]

Jumper Name	Pins	What happens at system reset...
CMOS clear	2-3	If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should be jumpered on 1-2 for normal operation.
Password Clear	6-7	If these pins are jumpered, administrator and user passwords will be cleared on the next reset. These pins should be jumpered on 5-6 for normal operation.
BIOS Flash Write Enable	11-12	If these pins are jumpered, it is possible to update the BIOS Boot Block code. These pins should be jumpered on 10-11 for normal operation and for normal BIOS operational updates.
BIOS Recovery	14-15	If these pins are jumpered, the system will attempt to recover the BIOS by loading the BIOS code into the flash device from a floppy disk. This jumper is typically only used when the BIOS has become corrupted. These pins should be jumpered on 13-14 for normal operation.

Hard Disk Drives

The platform ships with two drive carriers for mounting hot swap Ultra320 SCSI hard disk drives in the chassis.

For information on how to install these drives, see “[Installing or Removing a Hard Drive](#)”.

NOTE

The Intel Telco / Industrial Grade Server TIGPT1U does not support all SCSI hard drives. For a list of validated hard drive manufacturers and hard drive types, see

<http://support.intel.com/support/motherboards/server/TIGPT1U>

Drives can consume up to 17 watts of power each. Drives must be specified to run at a maximum ambient temperature of 45 °C.

Power Supply

The power supply is rated for 250 watts of power at the following voltages:

- 100–127 volts (V) at 50/60 Hertz (Hz); 5.11 amperes (A) maximum (max)
- 200–240 V at 50/60 Hz; 2.55 A maximum

The power subsystem supports the implementation of remote management features including remote enable, which permits power to be activated from a variety of sources.

System Cooling

The platform includes four front fans for cooling the processor, hard drives, and PCI cards. These fans are not hot-swappable. To replace the front fan module, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord or disconnect the DC mains from the system or wall outlet.

The power supply contains two built-in fans at the rear of the platform. These fans cannot be replaced without replacing the power supply.

Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the requirements outlined below. For a list of qualified components see the links under [“Additional Information and Software.”](#)

Processor

The server board accommodates one Intel® Pentium® 4 3.0GHz/512KB L2 cache processor in the mPGA478 package operating at 800MHz FSB.

Memory

A minimum of one 128 MB Unbuffered, ECC, DDR400- compliant, 184-pin DIMM. Only low-profile DIMMs can be installed. For best performance and dual-channel interleave operation, a minimum of two DIMMs must be installed and the DIMMs must be populated as follows:

- DIMM1A and DIMM 1B: Populate these two sockets together first
- DIMM 2A and DIMM 2B: Populate these sockets in addition to DIMM 1A and DIMM 2A if four DIMMs are to be used
- When four DIMMs are installed, the system will use dual-channel interleave. For single-channel memory, a single DIMM can be installed in socket DIMM 1A.

All memory components and DIMMs used with the Telco / Industrial Grade Server TIGPT1U must comply with the DDR specifications. For a complete list of supported memory DIMMs, see the links under [“Additional Information and Software.”](#)

NOTES

Although the server board architecture allows the user to mix various sizes of DIMMs between channels, DIMMs must be identical within each bank.

To be fully compliant with all applicable DDR SDRAM memory specifications, the board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. This allows the BIOS to read the SPD data and program the chipset to accurately configure memory settings for optimum performance. If non-SPD memory is installed, the BIOS will attempt to correctly configure the memory settings, but performance and reliability may be impacted or the DIMMs may not function under the determined frequency.

For ECC functionality, all installed DIMMs must be ECC.

2 Platform Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the safety instructions at the beginning of this manual. See [“Safety Information.”](#)

Tools and Supplies Needed

- Phillips* (cross head) screwdriver (#1 bit and #2 bit)
- Needle nosed pliers
- A ruler
- Pen or pencil
- Antistatic wrist strap and conductive foam pad (recommended)

System References

All references to left, right, front, top, and bottom and are based on the reader facing the front of the platform as it would be positioned for normal operation.

Removing and Installing the Chassis Cover

Removing the Chassis Cover

The Telco / Industrial Grade Server TIGPT1U must be operated with the top cover in place to ensure proper cooling. You will need to remove the top cover to add or replace components inside of the platform. Before removing the top cover, power down the server system and unplug all peripheral devices and the AC power cable or disconnect the DC mains. None of the components inside of the platform are hot-swappable.

NOTE

A nonskid surface or a stop behind the platform may be needed to prevent the platform from sliding on your work surface.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord or disconnect the DC mains.
4. While holding the blue button at the top of the chassis in, slide the top cover back until it stops.
5. Lift the cover straight up to remove it from the platform.

Installing the Chassis Cover

1. Place the cover over the chassis so that the side edges of the cover sit just inside the chassis sidewalls, with the front of the cover with about 1/8-inch gap showing between the chassis cover and the sheet-metal at the front of the chassis.
2. Press down slightly on the chassis cover behind the CD-ROM / DVD-ROM drive area and slide the cover forward until it clicks into place.
3. Reconnect all peripheral devices and the AC power cord or the DC mains.

Removing and Installing the Front Bezel

The front bezel needs to be removed only to install or remove hot-swap hard drives or the CDROM drive.

Removing the Front Bezel

1. Loosen the captive screws at the left and right edges of the front bezel (one screw at the right and one screw at the left).



NOTE

Hold the bezel in place while you loosen the screws. After both screws are loosened, the bezel will drop from the chassis.

2. Remove the front bezel from the chassis.

Installing the Front Bezel

1. While holding the front bezel in place, tighten the captive screws at the left and right edges of the bezel.

Removing and Installing the Processor Air Duct

The air duct must be removed to access the processor assembly and the two 40x48mm system fans. The processor air duct is required for proper airflow within the chassis. Be sure the air duct is in place before installing the chassis cover.

Removing the Processor Air Duct

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the screw at the top of the air duct.
4. Lift the air duct from the server platform.

Installing the Processor Air Duct

1. Place the processor air duct over the processor socket and 40x48mm fans, using caution to make sure you do not pinch any wires beneath the edges of the air duct.
2. Tighten the screw at the front of the air duct. The top of the installed air duct should be flush with the top surface of PCI adapter assembly.
3. Replace the chassis cover if you have completed all work inside of the chassis. For instructions, see [“Installing the Chassis Cover.”](#)

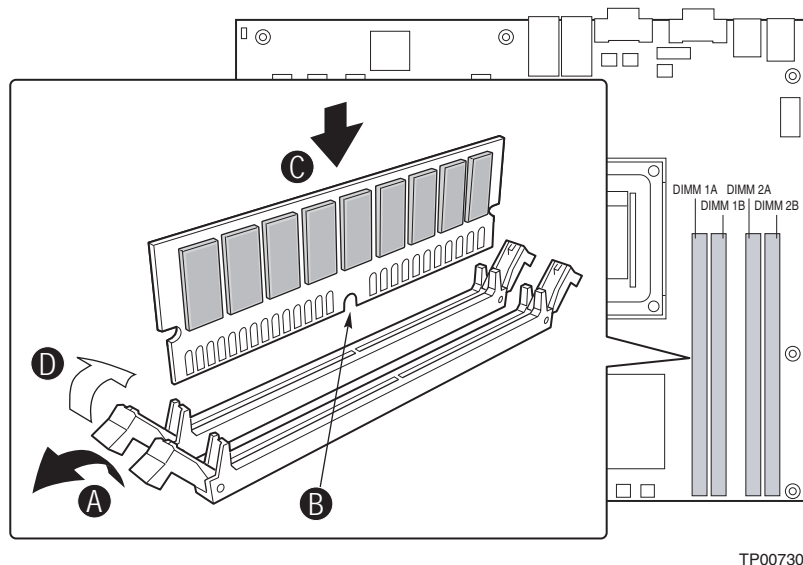
Installing and Removing Memory DIMMs

The silkscreen on the board for the DIMMs displays DIMM1A, DIMM1B, DIMM2A, and DIMM2B, starting from the inside of the board. DIMM1A is the socket closest to the processor socket.

Installing DIMMs

To install DIMMs, follow these steps:

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Locate the DIMM sockets. See Figure 9.



TP00730

Figure 9. Installing Memory DIMMs

4. Push the clips at each end of the DIMM socket(s) outward to the open position. See letter A in Figure 9.
5. Holding the DIMM by the edges, remove it from its anti-static package.
6. Position the DIMM above the socket. Align the small notch in the bottom edge of the DIMM with the keys in the socket. See letter B in Figure 9.
7. Insert the bottom edge of the DIMM into the socket. See letter C in Figure 9.
8. Push down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place. See letter D in Figure 9.
9. Replace the chassis cover if you have completed all work inside of the platform. For instructions, see [“Installing the Chassis Cover.”](#)

Removing DIMMs

To remove a DIMM, follow these steps:

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Locate the DIMM(s). See Figure 9.
4. Push the clips at each end of the DIMM socket(s) outward to the open position. The DIMM lifts from the socket.
5. Holding the DIMM by the edges, lift it away from the socket, and store it in an anti-static package.
6. Replace the chassis cover if you have completed all work inside of the platform. For instructions, see “[Installing the Chassis Cover.](#)”

Replacing the Processor



NOTE

Use the instructions provided below to replace a processor instead of using the instructions that came with the processor.



CAUTIONS

Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server. See “[Additional Information and Software](#)” for a link to the list of compatible processors.

ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

Follow the instructions below to remove and then install a processor.

Removing the Processor

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Remove the processor air duct that covers the processor. For instructions, see “[Removing the Processor Air Duct.](#)”
4. Loosen the four captive screws on the corners of the heat sink.

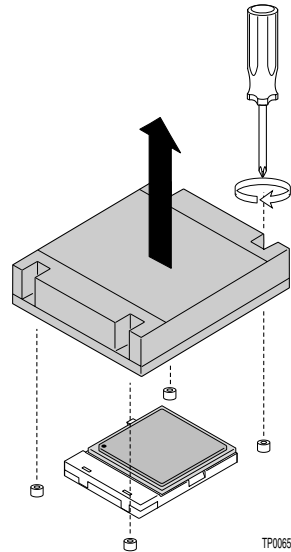


Figure 10. Removing Heat Sink

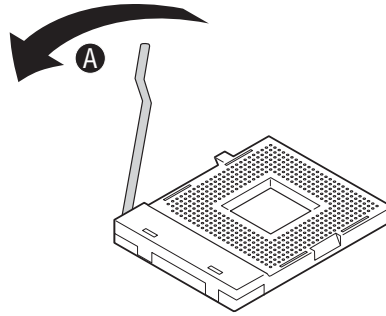
5. Twist the heat sink slightly to break the seal between the heat sink and the processor.
6. Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. **Do not force the heat sink from the processor. Doing so could damage the processor.**
7. Lift the processor lever.
8. Remove the processor.

Installing the Processor

To install a processor, follow these instructions:

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Remove the processor air duct that covers the processor. For instructions, see “[Removing the Processor Air Duct.](#)”

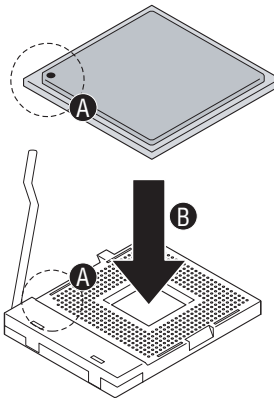
4. Locate the processor socket and raise the socket handle completely. See Figure 11, letter A.



TP00726

Figure 11. Open the Processor Socket Lever

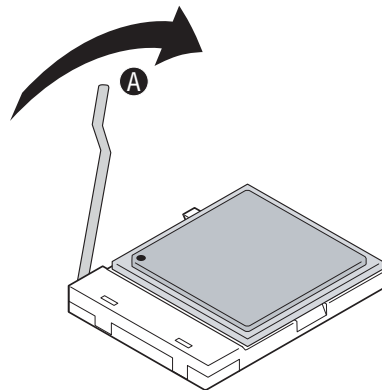
5. Aligning the pins of the processor with the socket, insert the processor into the socket. See letter A in Figure 12.



TP00727

Figure 12. Installing the Processor in the Processor Socket

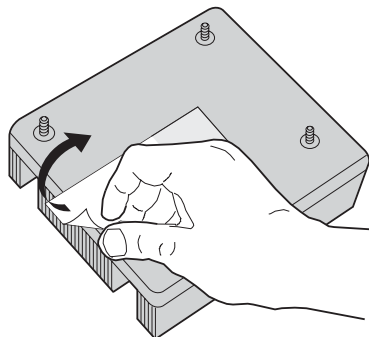
6. Close the handle completely. See letter A in Figure 13.



TP00728

Figure 13. Close Processor Socket Lever

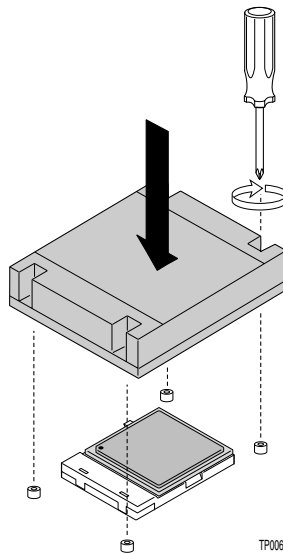
6. The heat sink has Thermal Interface Material (TIM) located on the bottom of it. If the TIM has a covering sheet on it, remove the covering sheet. See Figure 14.



TP00699

Figure 14. Removing Covering from Heat Sink TIM

7. Set the heat sink over the processor, lining up the four captive screws with the four posts surrounding the processor. Use caution to make sure not cables are pinched beneath the heat sink.
8. Loosely screw in the captive screws on the heat sink corners in a diagonal manner. Do not fully tighten one screw before tightening another.
9. Gradually and equally tighten each captive screw until each is firmly tightened.



TP00657

Figure 15. Installing Heat Sink

10. Install the processor air duct. The air duct must be in place for proper system cooling. For instructions, see [“Installing the Processor Air Duct.”](#)

Installing or Removing a Hard Drive

Up to two hot-swappable SCSI drives can be installed into your chassis. It is not necessary to remove the chassis cover to add or replace a hot-swap hard drive. It is necessary to remove the front bezel from the chassis.

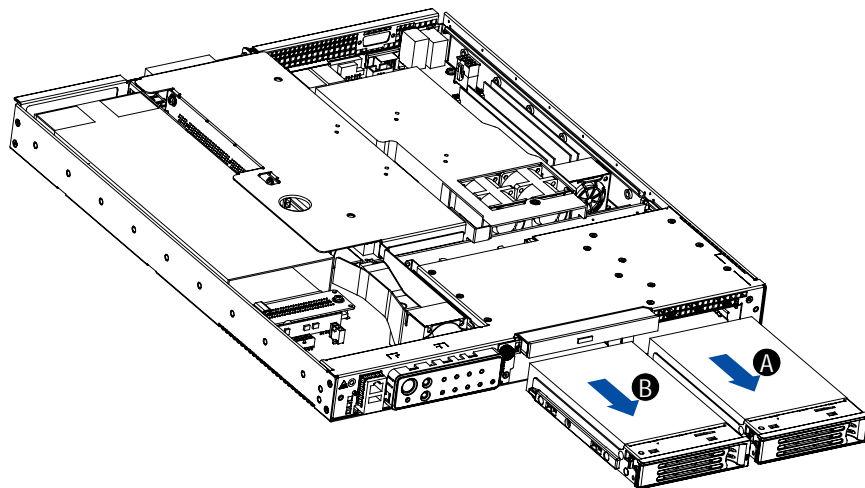


CAUTION

The Intel Telco / Industrial Grade Server TIGPT1U does not support all hard drives. To see a list of validated manufacturers and hard drive types, see: <http://support.intel.com/support/motherboards/server/TIGPT1U>

Installing a Hard Drive

1. Remove the front bezel. For instructions, see “[Removing the Front Bezel.](#)”
2. Press in on the green latch on the front of the hard drive carrier.
3. Pull out on the black lever to slide the carrier from the chassis.

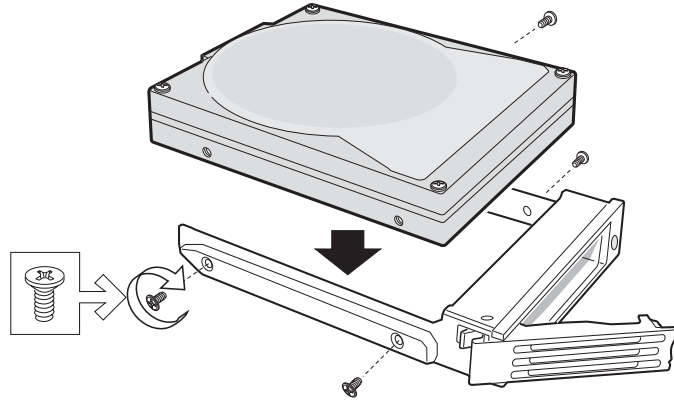


TP00755

Figure 16. Removing Hard Drive Carrier from Chassis

4. Remove the four screws that attach the plastic retention device or the previously installed hard drive to the drive carrier. Two screws are at each side of the retention device or the hard drive. Store the plastic retention device for future use.
5. Remove the hard drive from its wrapper and place it on an antistatic surface.
6. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.

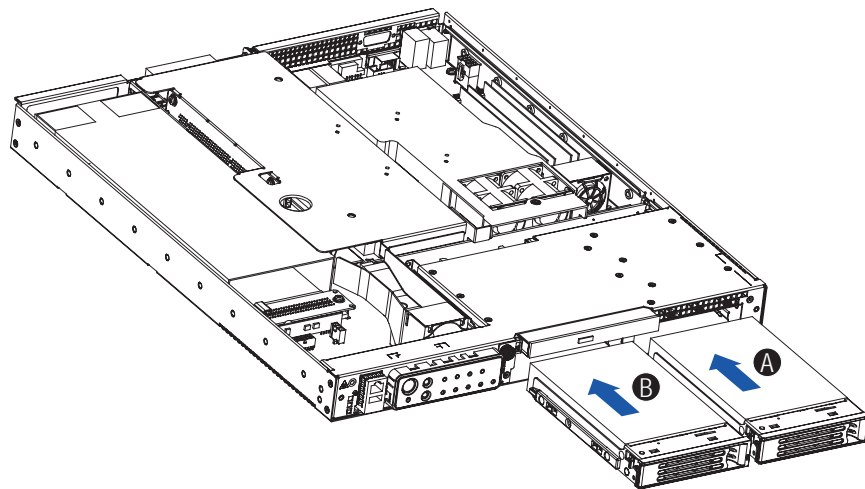
7. With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier. See Figure 17.
8. Align the holes in the drive to the holes in the drive carrier and attach it to the carrier with the screws that were attached to the plastic retention device.



TP00736

Figure 17. Attaching a Hard Disk Drive to a Carrier

9. With the black lever in the fully open position, slide the drive assembly into the chassis. Insert the primary drive in the right bay (letter A in Figure 18). The green latch at the front of the drive carrier must be to the right. Do not push on the black drive carrier lever until the lever begins to close by itself.
10. When the black drive carrier lever begins to close by itself, push on it to lock the drive assembly into place.



TP00738

Figure 18. Inserting Hard Disk Drive Assembly into Chassis

11. Install the front bezel. Install the front bezel. For instructions, see [“Installing the Front Bezel.”](#)

Removing a Hard Drive

1. Remove the front bezel. For instructions, see [“Removing the Front Bezel.”](#)
2. Press in on the green latch at the front of the hard drive carrier.
3. Pull out on the black lever to slide the carrier from the chassis.
4. Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.
5. (optional) Place the plastic retention device into the drive carrier, using the four screws you removed from the hard drive.
6. Insert the screws that held the drive in the carrier into the screw locations on the carrier for future use.
7. With the black lever in the fully open position, slide the drive carrier into the chassis. The green latch must be to the right. Do not push on the black lever until the lever begins to close by itself.
8. When the black lever begins to close by itself, push on it to lock the drive carrier into place.
9. Install the front bezel. For instructions, see [“Installing the Front Bezel.”](#)

Replacing the CD-ROM Drive

Your Telco/Industrial Grade Server TIGPT1U comes with a CD-ROM drive installed in it. As an option, you can replace the CD-ROM drive with a DVD-ROM drive. It is necessary to remove the chassis cover and the front bezel from the chassis to remove or replace the drive.

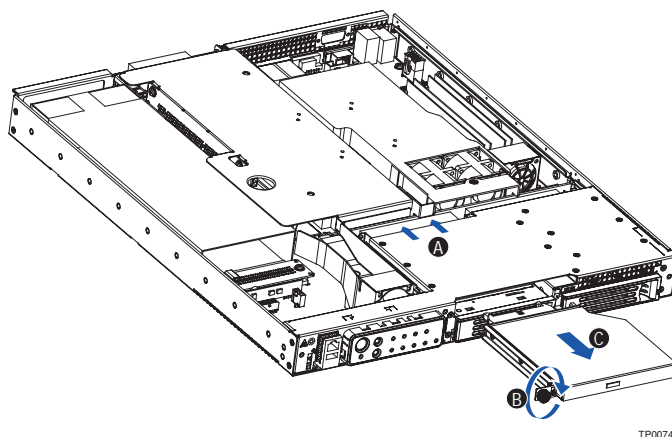


CAUTION

The CD-ROM / DVD-ROM drive is NOT hot swappable. Before removing or replacing the drive, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the CD-ROM Drive

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the front bezel. For instructions, see [“Removing the Front Bezel.”](#)
4. At the rear of the CD-ROM drive, push outward on the cable retention clips on each side of the CD-ROM data cable. Releasing the retention clips pushes the connector from the drive.
5. At the rear of the CD-ROM drive, press inward on the cable retention clip at the right side of the CD-ROM power cable. While holding the retention clip in, pull the power cable from the drive.
6. Loosen the blue captive screw at the left side of the CD-ROM drive assembly.
7. Slide the CD-ROM drive assembly from the chassis.



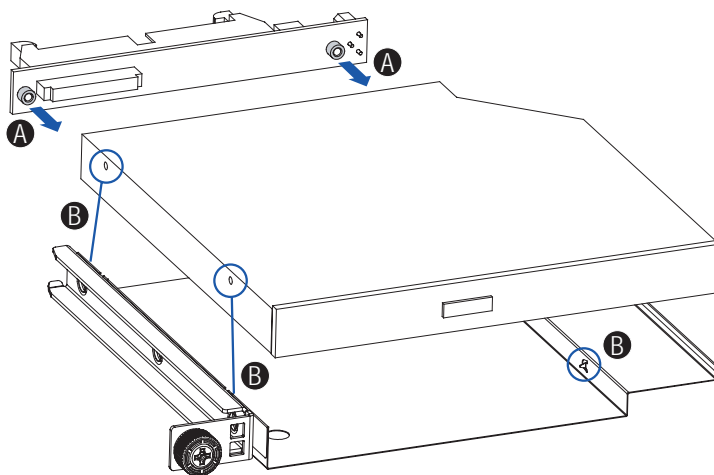
TP00744

Figure 19. Removing CD-ROM Drive Assembly from Chassis

8. Press downward on the side of the bracket where the blue captive screw is attached to release the CD-ROM drive from the drive bracket.
9. Remove the two small screws that attach the backplane to the drive. See letter A in Figure 20.

Installing the CD-ROM / DVD-ROM Drive

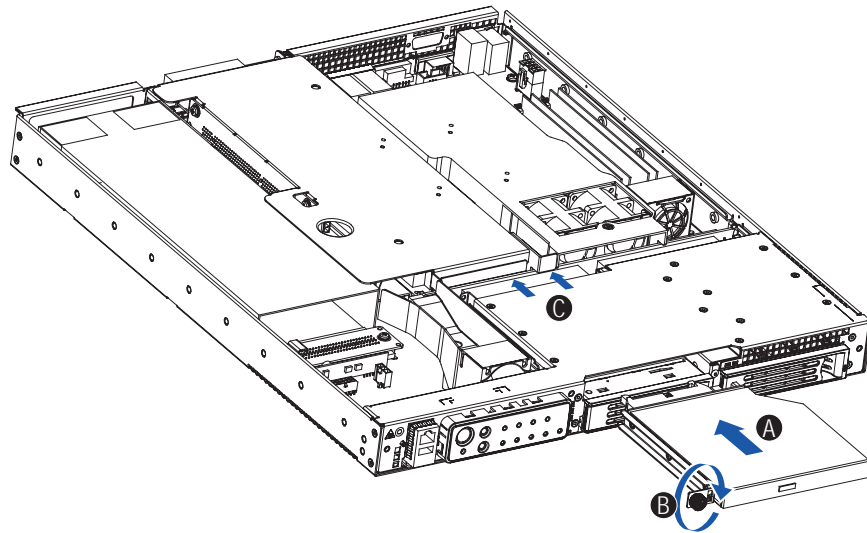
1. Attach the backplane to the replacement drive, using the screws removed in step 9. See letter A in Figure 20.
2. Lining up the pins on each side of the bracket (two on each side) to the holes in the drive, set the replacement CD-ROM or DVD-ROM drive into the drive bracket. See letter B in Figure 20. You may need to push gently on one side of the bracket to push the pins into place.



TP00735

Figure 20. Attaching CD-ROM Drive or DVD-ROM Drive to Bracket

3. Slide the CD-ROM / DVD-ROM drive assembly into the chassis. See letter A in Figure 21.
4. Tighten the blue captive screw at the left side of the drive assembly. See letter B in Figure 21.
5. Attach the drive power and data cables at the rear of the drive. See letter C in Figure 21 for arrows to the cable locations. When the cables are firmly installed, the cable retention clips will lock into place.



TP00737

Figure 21. Install CD-ROM Drive or DVD-ROM Drive Assembly into Chassis

6. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)
7. Install the front bezel. For instructions, see [“Installing the Front Bezel.”](#)

Installing or Removing a PCI Add-in Card

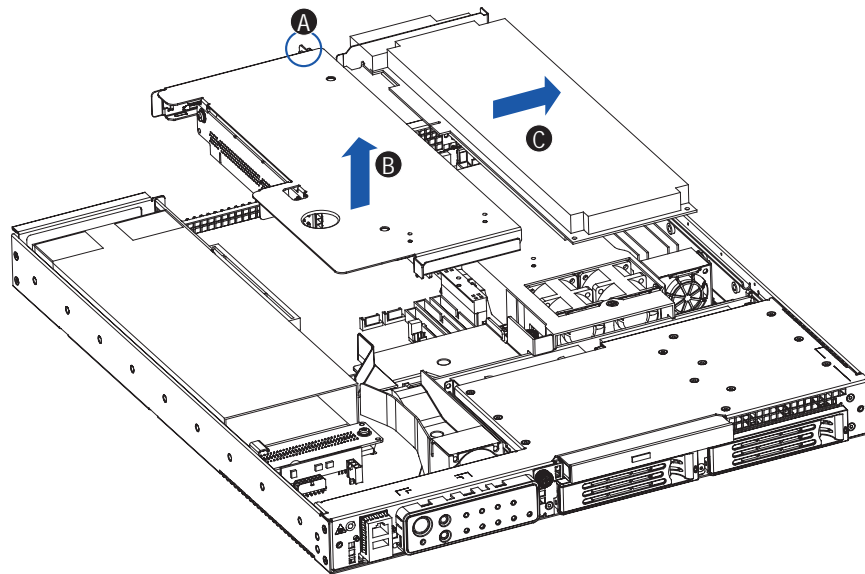


CAUTION

PCI cards in this system are NOT hot swappable. Before removing or replacing the PCI card, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Installing a PCI Add-in Card

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Loosen the captive screw that holds the PCI riser card assembly to the rear of the platform. See letter A in Figure 22.
4. Pull up on the riser to remove the riser card assembly from the chassis. See letter B in Figure 22.



TP00745

Figure 22. Removing Riser from Chassis

5. Insert the PCI add-in card into the slot on the riser card.

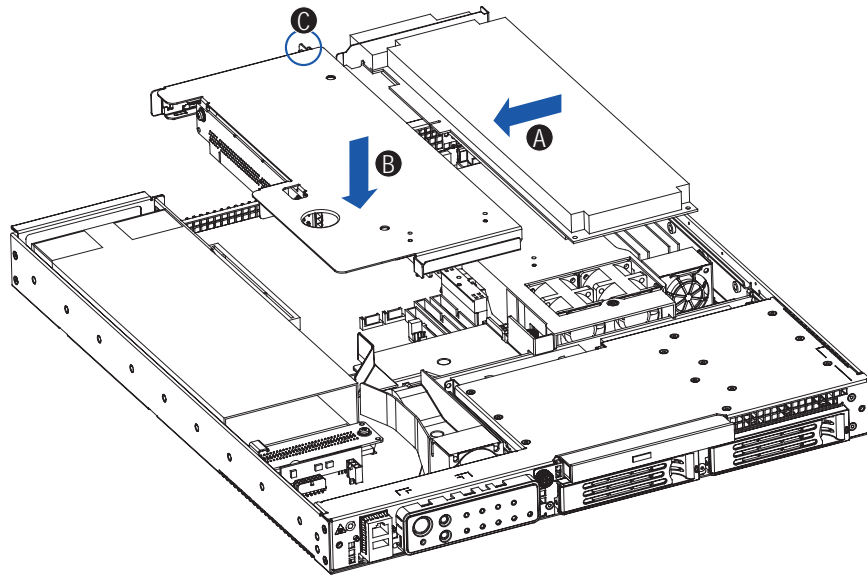
6. Firmly press the riser card straight down over the PCI slot until it is seated in the server board slot. See letter B in Figure 23.



CAUTION

Press the riser card straight down into the slot. Press down on the riser card, not on the PCI card. Tipping it in the slot while installing it or pressing on the PCI card may damage the riser card, board slot, or the PCI card.

7. Tighten the captive screw that holds the riser assembly to the chassis. See letter C in Figure 23.

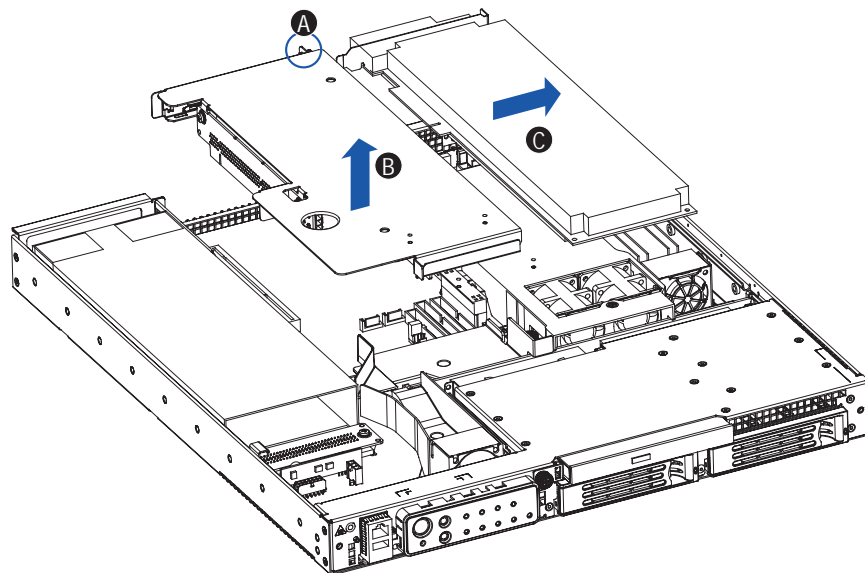


TP00732

Figure 23. Installing PCI Card into Riser

Removing a PCI Add-in Card

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Loosen the captive screw that holds the PCI riser card assembly to the rear of the platform. See letter A in Figure 24.
4. Pull up on the riser to remove the riser card assembly from the chassis. See letter B in Figure 24.
5. Pull the PCI card from the riser card slot. See letter C in Figure 24.



TP00745

Figure 24. Removing PCI Card

6. Insert the empty PCI riser into the socket on the server board.
7. Tighten the captive screw at the rear of the platform to hold the PCI riser in place.
8. Install the chassis cover. For instructions, see “[Installing the Chassis Cover.](#)”

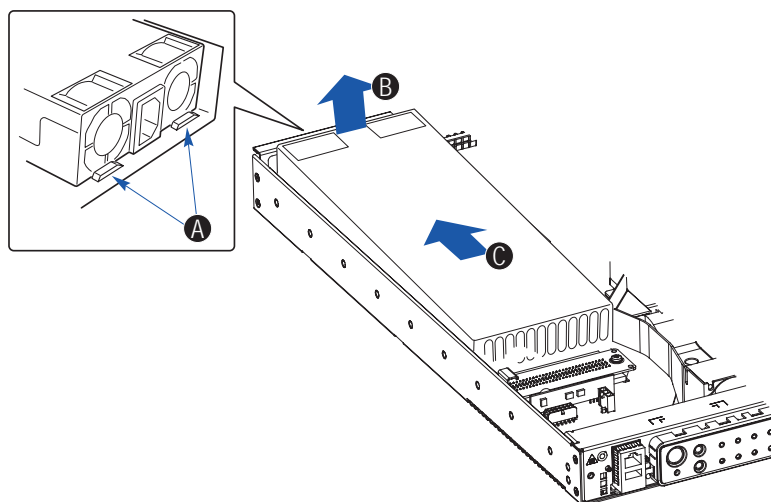
Replacing the Power Supply

CAUTION

Your server does not have a redundant power supply. Before replacing the power supply, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Power Supply

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. The power supply is very hot when you first turn off power to the system. Allow the power supply to cool for several minutes.
3. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
4. DC power supply only: Remove the screw that holds the yellow and green ground wire at the front of the power supply. Save this screw for re-installation later.
5. Remove the PCI riser assembly. For instructions, see “[Removing a PCI Add-in Card,](#)” steps 1-4.
6. Lift up on the rear of the power supply until it clears the two half-circle stops at the rear of the power supply. See letters A and B in Figure 25.
7. While holding the rear of the power supply above the stops, push back at the front of the power supply to disconnect it from the power board. See letter C in Figure 25.
8. Lift the power supply from the chassis.

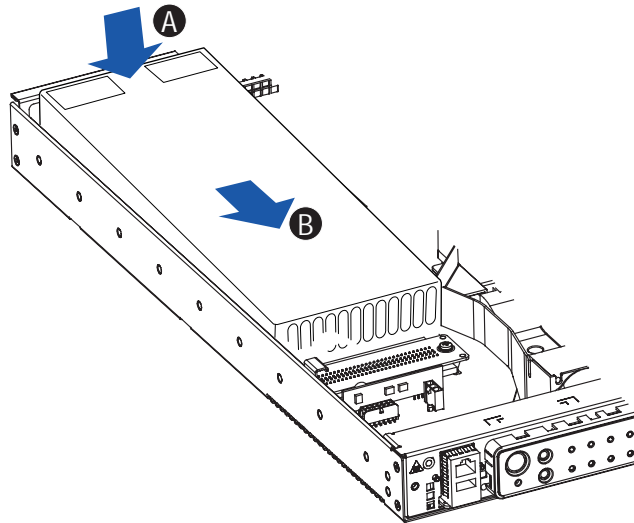


TP00731

Figure 25. Removing the Power Supply

Installing the Power Supply

1. DC power supply only: Lower the power supply into place, inserting the terminal block through the hole in the rear of the chassis. Use caution to make sure no cables are pinched under the power supply. Continue with step 10.
2. AC power supply only: Lower the power supply into place. Use caution to make sure no cables are pinched under the power supply. See Figure 26.
3. Push firmly at the rear of the power supply to push the connector at the front of the power supply into the power board.



TP00746

Figure 26. Installing the Power Supply

4. DC power supply only: Use the screw removed in step 4 to install the green and white ground cable over the post at the left side of the power board.
5. Install the PCI riser assembly. For instructions, see [“Installing a PCI Add-in Card.”](#)
6. DC power supply only: Remove the black connector cover to connect the power supply. Replace the connector cover over the completed connections.
7. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the Front Fan Module

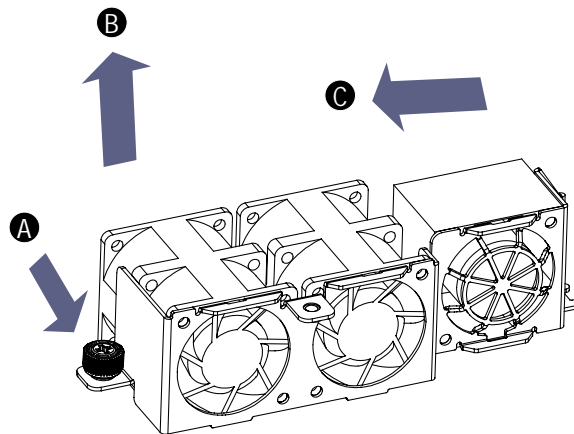


CAUTION

Your server does not have hot-swappable fans. Before replacing any of the fans, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Front Fan Module

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the processor air duct. For instructions, see [“Removing the Processor Air Duct.”](#)
4. Remove the captive screw that attaches the front fan module to the chassis. See letter A in Figure 27.
5. Lift the left side of the fan module. See letter B in Figure 27.
6. Pull the fan module to the left to disengage the hook that holds the right side of the fan module. See letter C in Figure 27.
7. Remove the fan module from the chassis. For ease of access to some of the cable connections, lift the module from the its installed location before disconnecting the cables.



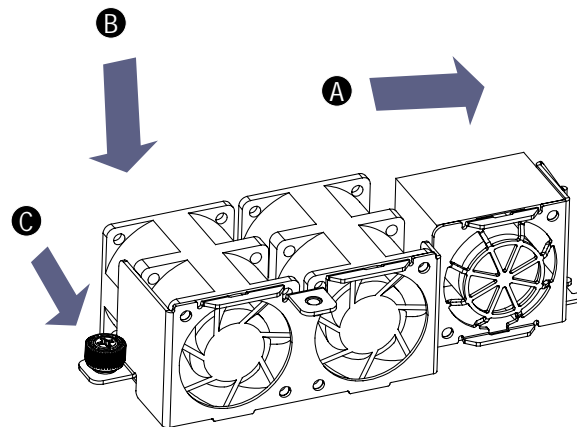
TP00751

Figure 27. Removing the Front Fan Module

8. Disconnect the front fan module cables from the server board.

Installing the Front Fan Module

1. Connect the following cables between the replacement front fan module and the server board. Because some of the connections are difficult to reach after the fan module is installed, it is recommended that you connect the cables first:
 - Left fan in the fan module to the Sys Fan 1 connector. Use the short cable.
 - Center fan in the fan module to the Sys Fan 2 connector. Use the short cable.
 - Right fan in the fan module to the Sys Fan 6 connector. (Left side of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then across the center of the board, in front of the processor socket.
 - Center fan in the fan module to the Sys Fan 3 connector. (Rear of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then to the right side of the processor socket.
 - Left fan in the fan module to the Sys Fan 4 connector. (Left side of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then to the right side of the processor socket.
2. Lower the right side of the fan module into place so that it catches under the hook for it. Use caution to ensure no cables are pinched beneath the fan module. See letter A in Figure 28.
3. Set the left side of the fan module into place. See letter B in Figure 28.
4. Tighten the captive screw. See letter C in Figure 28.



TP00752

Figure 28. Installing the Front Fan Module

5. Install the processor air duct. For instructions, see [“Installing the Processor Air Duct.”](#)
6. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the Single Front Fan

At the left side of the chassis is a single 40x28mm fan, attached to a plastic fan retainer. This fan assembly is not part of the front fan module and must be purchased and replaced separately. To replace this fan assembly, use the following steps.

CAUTION

Your server does not have hot-swappable fans. Before replacing any of the fans, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Single Front Fan

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the fan connection from the Sys 5 fan connection on the server board.
4. Remove the screw at the left side of the plastic fan retainer. Save this screw to insert into the new assembly. See letter A in Figure 29.
5. Lift the fan retainer from the chassis. See letter B in Figure 29.

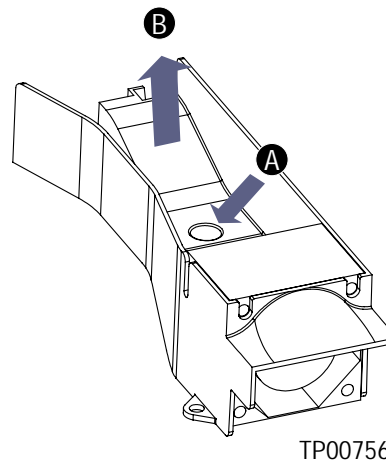


Figure 29. Removing Single Front Fan

Installing the Single Front Fan

1. Set the replacement fan in place with the hole at the front of the fan retainer, fitting it over the peg in the bottom of the chassis. See letter A and the two B's in Figure 30. Use caution to make sure no cables are pinched.
2. Use the screw removed in step 1 to secure the assembly to the chassis. See letter C in Figure 30.
3. Attach the fan cable to the Sys 5 fan connector on the server board. Route the fan cable between the power supply and the CPU power connector at J5A1 on the extended front panel board.
4. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

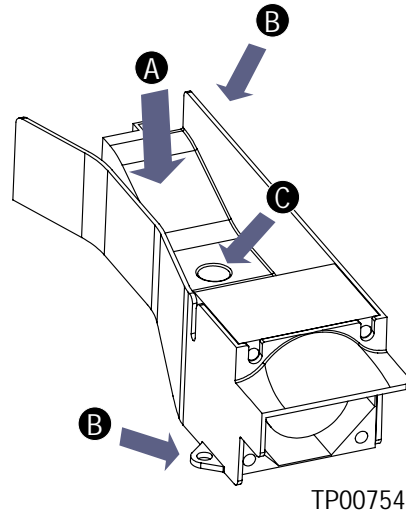


Figure 30. Installing Single Front Fan

Replacing the Mini-Bezel

The mini bezel is installed over the front panel controls and LEDs. To replace the mini bezel, use the following instructions. It is not necessary to power down the server to replace the mini-bezel.

1. Remove the front bezel. For instructions, see [“Removing the Front Bezel.”](#)
2. Insert your thumb or a finger between the power button and the NIC / USB connectors. Do not press the power button.
3. Squeeze gently to the right while pulling out on the mini bezel. The left side of the bezel will disengage from the chassis.
4. Unhook the clip at the right of the mini-bezel.
5. Press the replacement bezel firmly into place, one side at a time.
6. While pressing in, move the mini bezel from left to right to ensure it is firmly seated.
7. Install the front bezel. For instructions, see [“Installing the Front Bezel.”](#)

Replacing the Extended Front Panel Board

The extended front panel board provides an interface to the controls at the front of the server system, the power interconnect for the server board, SCSI midplane and riser, the USB2 and Serial B interface, and the front panel LED interface connect. To replace the extended front panel board, the following components must be removed:

- All cable connections on the extended front panel board and selected connections from other board / components
- PCI riser assembly
- Single front fan
- Power supply
- Power distribution board
- White plastic cable retention device
- Light pipe

Use the instructions below to remove the extended front panel board, remove / replace the light pipe, and then install a replacement front panel board



CAUTION

Before replacing any of the server boards, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Extended Front Panel Board

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the PCI riser assembly. For instructions, see [“Removing a PCI Add-in Card,”](#) steps 3 – 4.
4. Remove the power supply. For instructions, see [“Removing the Power Supply.”](#)
5. Remove the single front fan. For instructions, see [“Removing the Single Front Fan.”](#)
6. Remove the power distribution board. For instructions, see [“Removing the Power Distribution Board.”](#)
7. Remove the screw that attaches the white cable retention device behind the midplane board.
8. Lift the cable retention device from the chassis.

9. Disconnect the following cables on the extended front panel board and other locations:
 - Midplane power from J1E1 and from the midplane board at J9L1
 - Riser power from J3E1
 - Front panel USB from J2B1
 - CPU power from J5A1
 - Front panel data from J8A1
 - CD-ROM / DVD-ROM data and power cables from the rear of the CD-ROM or DVD-ROM drive
 - Aux power from J9A1
 - Main power from J10A1
 - Alarms cable from J9B1
10. Remove the screw near the USB connector (J2B1).
11. Gently work the extended front panel board backward, toward the rear of the chassis to disengage the light pipe from behind the front mini-bezel.

Replacing the Light Pipe

Light pipe replacement instructions are included as part of the instructions to replace the extended front panel board. To replace the light pipe using an existing extended front panel board, use the instructions under the following headings, replacing the existing extended front panel board instead of installing a replacement board:

- [“Removing the Extended Front Panel Board”](#)
 - [“Replacing the Light Pipe”](#) (the steps below)
 - [“Installing the Extended Front Panel Board”](#)
1. Note the position of the light pipes so that you will be able to correctly position it on the extended front panel board during the re-installation process. The pipes extend outward from the extended front panel board.
 2. Remove the light pipe by gently pressing the four plastic clips from the underside of the extended front panel board until the bottom of the clips are flush with the bottom of the extended front panel board.
 3. Gently ease the light pipe from the extended front panel board.
 4. Insert the four plastic clips on the light pipe or the replacement light pipe into the matching holes in the new extended front panel board. Insert the clips gently and evenly – do not insert one clip fully without first partially pressing the others into place.

Installing the Extended Front Panel Board

1. Lower the replacement extended front panel board into the chassis at an angle, setting the right front corner in first.
2. Lower the left front side of the extended front panel board into the chassis, watching to clear the chassis cover clip at the left side of the chassis.
3. While holding the rear edge of the board above the midplane board, ease the board forward, sliding the NIC connector and USB port through the matching cutout at the front of the chassis.
4. Lower the rear of the board into position fitting the board over the three placement pegs at the bottom of the chassis.
5. Push the board forward, locking the board onto the placement pegs.
6. Replace the screw you removed in step 9, near the USB connector at J2B1.
7. Install the power distribution board. For instructions, see [“Installing the Power Distribution Board.”](#)
8. Install the power supply. For instructions, see [“Installing the Power Supply.”](#)
9. Reconnect all cables to the extended front panel board. Note that most connectors are labeled to match the connection point on the boards. For ease in making connections, connect the cables in the following order:
 - Midplane power to J1E1 and to the midplane board at J9L1
 - Front panel USB to J2B1. Route the cable between the power supply and the CPU power connector (J5A1)
 - Alarms cable to J9B1. This is a very tightly fitting cable. Some force may be necessary to fully seat the cable.
 - CPU power to J5A1. Route the CPU cable between the midplane board and the front fan module.
 - Front panel data to J8A1
 - Main power to J10A1. Before making the connection, push the SCSI channel A connector (connects to J1J1 on the server board) between the front fan module and the J10A1 connector.
 - Aux power to J9A1
 - CD-ROM / DVD-ROM data and power cables to the rear of the CD-ROM or DVD-ROM drive
 - Riser power to J3E1
10. Install the single front fan. For instructions, see [“Installing the Single Front Fan.”](#) The fan retention device is placed over the midplane power cable. Use caution to make sure you do not pinch any cables under the fan assembly.
11. Install the cable retention device and screw it into place. Use caution to make sure no cables are pinched under the edges of the retention device. The cable retention device is placed over the top of the following cables:
 - CD-ROM / DVD-ROM data and power
 - Midplane power
 - CPU power
 - Front panel data
12. Install the PCI riser assembly. For instructions, see [“Installing a PCI Add-in Card.”](#)
13. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the PCI Riser Board

The PCI riser board provides the attachment point on the PCI riser. This is the board into which a PCI card may be installed. To replace the PCI riser board, the PCI riser assembly must be removed.



CAUTION

Before replacing any of the server boards, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Use the following instructions to replace the PCI riser board.

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the PCI card. For instructions, see [“Removing a PCI Add-in Card.”](#)
4. Disengage the power connector from J1A1 on the PCI riser board.
5. Note the position of the riser board within the PCI riser assembly. The power connector is near the round cut-out in the PCI riser card and the PCI connector is placed over the sheet metal, not over the cut-out area.
6. Remove the two screws that attach the riser board to the PCI riser assembly.
7. Attach the replacement board using the screws removed in step 4.
8. Reconnect the power cable to J1A1 on the PCI riser board.
9. Install the PCI card. For instructions, see [“Installing a PCI Add-in Card.”](#)
10. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the Power Distribution Board

The power distribution board routes power from the power supply to the rest of the server system. To replace the power distribution board, the PCI riser assembly and the power supply must be removed. Use the following instructions to replace the power distribution board.



CAUTION

Before replacing any of the server boards, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Power Distribution Board

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the PCI riser assembly. For instructions, see [“Removing a PCI Add-in Card,”](#) steps 3 – 4.
4. Remove the power supply. For instructions, see [“Removing the Power Supply.”](#)
5. Remove the two screws that attach the power distribution board to the bottom of the chassis.
6. Push backward on the power distribution board to disconnect it from the extended front panel board.

Installing the Power Distribution Board

1. Attach the replacement power distribution board to the extended front panel board. The connector side of the board faces the bottom of the chassis, the green board faces up and the cut-out for the post in the bottom of the chassis is to the left.
2. Replace the two screws removed in step
3. Install the power supply. For instructions, see [“Installing the Power Supply.”](#)
4. Install the PCI riser assembly. For instructions, see [“Installing a PCI Add-in Card.”](#)
5. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the Midplane Board

The midplane board provides power and data connections to the hot swap hard drives and CD-ROM / DVD-ROM drives. To replace the board, the following components must be removed:

- All cable connection on the midplane board
- Hard drive carriers
- CD-ROM / DVD-ROM power and data cables must be disconnected. CD-ROM or DVD-ROM drive does not need to be removed
- PCI riser assembly
- White plastic cable retention device behind the midplane board
- Processor air baffle

To replace the board, use the following instructions.



CAUTION

Before replacing any of the server boards, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Midplane Board

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the hot-swap hard drive carriers.
3. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
4. Disconnect the CD-ROM / DVD-ROM power and data cables from the rear of the CD-ROM or DVD-ROM drive.
5. Remove the PCI riser assembly. For instructions, see [“Removing a PCI Add-in Card,”](#) steps 3 – 4.
6. Remove the screw that attaches the white cable retention device behind the midplane board.
7. Lift the cable retention device from the chassis.
8. Remove the processor air duct. For instructions, see [“Removing the Processor Air Duct.”](#)
9. Lift the midplane board straight up.
10. Disconnect the following connectors from the midplane board
 - Midplane power from J9L1
 - SCSI Channel A from J2L1

Installing the Midplane Board

1. Connect the midplane power and SCSI Channel A connectors to the replacement midplane board.
2. Slide the replacement board into the guides at the right side of the chassis and at the right side of the single front fan assembly. All cables must be behind the midplane board. Use caution to make sure no cables are pinched under the midplane board.
3. Install the processor air duct. For instructions, see [“Installing the Processor Air Duct.”](#)
4. Push the handle on the front panel to baseboard connector towards the rear of the chassis.
5. Install the cable retention device and screw it into place. The pegs at the left and right side of the retention device fit into matching holes in the extended front panel board. Use caution to make sure no cables are pinched under the edges of the cable retention device. The cable retention device is placed over the top of the following cables:
 - CD-ROM / DVD-ROM data and power
 - Midplane power
 - CPU power
 - Front panel data
6. Reconnect the data and power cables for the CD-ROM / DVD-ROM drive.
7. Install the PCI riser assembly. For instructions, see [“Installing a PCI Add-in Card.”](#)
8. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)
9. Install the hot-swap drive carriers.

Replacing the Server Board

The Intel® Carrier Grade Server TIGPT1U uses the Intel® Server Board SE7210TP1-E. To replace the server board, the following components must be removed:

- All cable connections on the server board
- Heat sink
- Processor
- All DIMMs
- PCI riser assembly
- Front fan module

To replace the server board, use the following instructions.



CAUTION

Before replacing any of the server boards, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.

Removing the Server Board

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see [“Removing the Chassis Cover.”](#)
3. Remove the PCI riser assembly. For instructions, see [“Removing a PCI Add-in Card,”](#) steps 3 – 4.
4. Remove the processor air duct. For instructions, see [“Removing the Processor Air Duct.”](#)
5. Remove the screw that attaches the white cable retention device behind the midplane board.
6. Lift the cable retention device from the chassis.
7. Remove all DIMMs. For instructions, see [“Removing DIMMs.”](#)
8. Remove the heat sink and processor. For instructions, see [“Removing the Processor.”](#)
9. Remove the front fan module. For instructions, see [“Removing the Front Fan Module.”](#)

10. Disconnect the following cables:
 - SCSI Channel A from J1J1
 - Right fan in fan module from Sys Fan 6 connector
 - Single front fan from Sys Fan 5 connector
 - Center fan in fan module from Sys Fan 3 connector
 - Center fan in fan module from Sys Fan 2 connector
 - Left fan in fan module from Sys Fan 4 connector
 - Left fan in fan module to Sys Fan 1 connector
 - Front panel USB from USB_1 connector
 - Auxilliary power from Aux Power connector
 - Main power from Main Power connector
 - CD-ROM / DVD-ROM drive from Pri IDE connector
 - Extended front panel board from Front Panel connector
 - Serial B from the server board
 - CPU power (cable labeled Baseboard Power)
11. Remove the eight screws that attach the server board to the chassis.
12. Lift the server board from the chassis. Use caution in pulling it out from beneath the Serial B connector at the rear of the chassis.

Installing the Server Board

1. Make sure the white mylar is in place over the standoffs in the bottom of the chassis.
2. Make sure your replacement board includes a heat sink bracket installed on the underside of the board.
3. Set the replacement board into place, using caution to make sure no cables are pinched under the board. Insert the right edge of the board first, then lower the left edge and line up the I/O ports at the rear of the system.
4. Make sure the standoff locations line up correctly and reinsert the eight screws removed in step 11, under [“Removing the Server Board.”](#) For ease of installation, install the right, rear screw first.
5. Make the following connections. For ease of installation, connect the cables on the server board the following order:
 - Serial B cable to the Serial B connector on the server board (Rear of board). Push the ribbon cable against the right chassis wall.
 - CPU power cable to the CPU power connector on the server board. (Rear of board, cable is labeled “Baseboard Power”). Push the cable against the right chassis wall, over the top of the Serial B cable.
 - Extended front panel board to Front Panel connector. (Front of board)
 - CD-ROM / DVD-ROM drive from Pri IDE connector. (Front of board). Push the handle on the connector to the left.
 - SCSI Channel A to J1J1. (Left side of board, near front). Route the cable between the Pri IDE connector and the main power connector.
 - Main power cable to Main Power connector. (Front of board).
 - Auxilliary power cable to the Aux Power connector. (Next to Main Cower connector). Route the cable between the Pri IDE connector and the main power connector. Place cable over the top of the SCSI Channel A cable.

- Front panel USB cable to the USB_1 connector. Cable. (Near Main Power connector). Route cable between Midplane Power connector on extended front pane board and the power supply, then crossing over the top of the battery and behind the main power connector.
 - Single front fan to the Sys Fan 5 connector. (Left side of board). Route cable between power supply and the left edge of the server board.
 - Left fan in the fan module to the Sys Fan 1 connector. Use the short cable.
 - Center fan in the fan module to the Sys Fan 2 connector. Use the short cable.
6. Install the front fan module. For instructions, see [“Installing the Front Fan Module.”](#)
 7. Make the following connections:
 - Right fan in the fan module to the Sys Fan 6 connector. (Left side of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then across the center of the board, in front of the processor socket.
 - Center fan in the fan module to the Sys Fan 3 connector. (Rear of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then to the right side of the processor socket.
 - Left fan in the fan module to the Sys Fan 4 connector. (Left side of board). Route the cable next to DIMM socket 1A (DIMM socket nearest the processor socket), then to the right side of the processor socket.
 8. Install the processor and heat sink. For instructions, see [“Installing the Processor.”](#)
 9. Install all DIMMs. For instructions, see [“Installing DIMMs.”](#)
 10. Push the handle on the front panel to baseboard connector towards the rear of the chassis
 11. Install the cable retention device and screw it into place. The pegs at the left and right side of the cable retention device fit into matching holes in the extended front panel board. Use caution to make sure no cables are pinched under the edges of the cable retention device. The cable retention device is placed over the top of the following cables:
 - CD-ROM / DVD-ROM data and power
 - Midplane power
 - CPU power
 - Front panel data
 12. Install the processor air duct. For instructions, see [“Installing the Processor Air Duct.”](#)
 13. Install the PCI riser assembly. For instructions, see [“Installing a PCI Add-in Card.”](#)
 14. Install the chassis cover. For instructions, see [“Installing the Chassis Cover.”](#)

Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.



CAUTION

Before replacing the battery, you must first take the server out of service, turn off all peripheral devices connected to the system, turn off the system by pressing the power button, and unplug the AC power cord from the system or wall outlet or disconnect the DC mains.



WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.



WARNING

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.



ADVARSEL

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.



WARNING

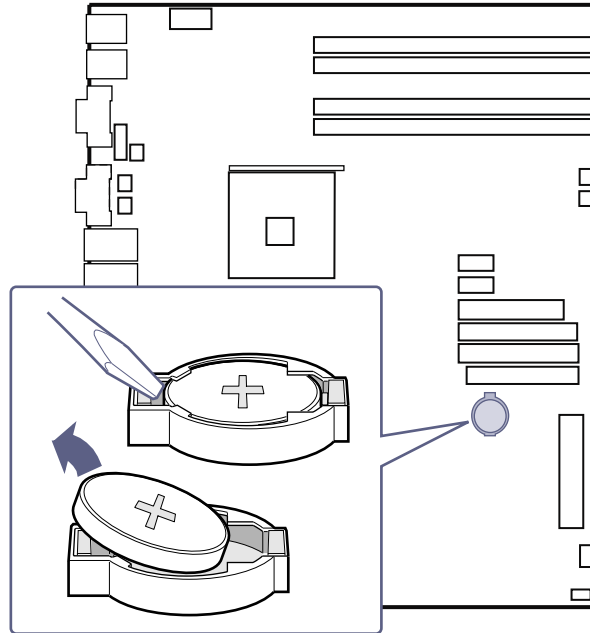
Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.



VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

1. Power down the server system and unplug all peripheral devices and the AC power cable or the DC mains.
2. Remove the chassis cover. For instructions, see “[Removing the Chassis Cover.](#)”
3. Locate the battery.
4. Insert the tip of a small flat bladed screwdriver, or an equivalent, under the tab in the plastic retainer. Gently push down on the screwdriver to lift the battery.
5. Remove the battery from its socket.



TP00511

Figure 31. Replacing the Battery

6. Dispose of the battery according to local ordinance.
7. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.
8. Close the chassis.
9. Run Setup to restore the configuration settings to the RTC.

Installing or Replacing the Power Cord

NOTE

If you will be placing your server in a rack, wait to install the power cord until after the server is in the rack.

Plug the power cord into the power supply.

Installing the Platform into a Rack

Installation instructions for the standard bracket kit and the optional rail kit are included with each kit. These instructions can also be found on the TIGPT1U Resource CD and at <http://support.intel.com/support/motherboards/server/chassis/tigpt1u/>

Equipment Rack Precautions

CAUTION

ANCHOR THE EQUIPMENT RACK: The equipment rack must be anchored to an unmovable support to prevent it from falling over when one or more servers are extended in front of it on slide assemblies. The equipment rack must be installed according to the manufacturer's instructions. You must also consider the weight of any other device installed in the rack.

MAIN POWER DISCONNECT: You are responsible for installing an AC or DC power disconnect for the entire rack unit. This main disconnect must be readily accessible and it must be labeled as controlling power to the entire unit, not just to the server(s).

GROUNDING THE RACK INSTALLATION: To avoid the potential for an electrical shock hazard, you must include a third wire safety grounding conductor with the rack installation. If server power cords are plugged into AC outlets that are part of the rack, then you must provide proper grounding for the rack itself. If server power cords are plugged into wall AC outlets, the safety grounding conductor in each power cord provides proper grounding only for the server. You must provide additional, proper grounding for the rack and other devices installed in it.

OVERCURRENT PROTECTION: The server is designed for an AC line voltage source with up to 20 amperes of overcurrent protection. If the power system for the equipment rack is installed on a branch circuit with more than 20 amperes of protection, you must provide supplemental protection for the server. If more than one server is installed in the rack, the power source for each server must be from a separate branch circuit.



CAUTION

Temperature: The operating temperature of the server, when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 35 °C (95 °F). Extreme fluctuations in temperature can cause a variety of problems in your server.

Ventilation: The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling. It must also include ventilation sufficient to exhaust a maximum of 1200 BTU per hour for a fully loaded server system using the Telco / Industrial Grade Server TIGPT1U.

It is important to note that this measurement is the maximum, and a minimum or typical system could be much less. You may want to calculate the BTU/hr measurement more accurately for your configuration. An extra 500 BTU/hr over many systems would translate into a large error calculating air conditioning capacity

3 Server Utilities

Table 4. Keyboard Commands

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
	The left and right arrow keys are used to move between the major menu pages. The keys have no effect if a submenu or pick list is displayed.
	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo the pressing of the Enter key. When the ESC key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the ESC key is pressed in any submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
<F9>	Setup Defaults - Pressing F9 causes the following to appear: <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Setup Confirmation</p> <hr/> <p style="text-align: center;">Load default configuration now?</p> <p style="text-align: center;">[Yes] [No]</p> </div> <p>If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.</p>
<F10>	Save and Exit - Pressing F10 causes the following message to appear: <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Setup Confirmation</p> <hr/> <p style="text-align: center;">Save Configuration changes and exit now?</p> <p style="text-align: center;">[Yes] [NO]</p> </div> <p>If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.</p>

Upgrading the BIOS

The upgrade utility allows you to upgrade the BIOS in flash memory. The code and data in the upgrade file include the following:

- On-board BIOS, ATA-100 RAID BIOS, and PXE option ROMs for the devices that are embedded on the system board
- The Setup Utility
- The System BIOS

Preparing for the Upgrade

The steps below explain how to prepare to upgrade the BIOS, including how to:

- Record the current BIOS settings
- Obtain the upgrade utility
- Prepare a bootable diskette for the utility

In the unlikely event that a BIOS error occurs during the BIOS update process, see “[Recovering the BIOS](#)” for instructions on performing a BIOS recovery.

Recording the Current BIOS Settings

1. Boot the computer and press <F2> when you see the message:
`Press <F2> Key if you want to run SETUP`
2. Write down the current settings in the BIOS Setup program.

NOTE

Do not skip step 2. You will need these settings to configure your computer at the end of the procedure.

Obtaining the Upgrade

Download the BIOS image file to a temporary folder on your hard drive. See “[Additional Information and Software](#)” for a link to the update software.

NOTE

Review the instructions distributed with the upgrade utility before attempting a BIOS upgrade. Review also any release notes in the release notes file that accompanies the new version of the BIOS. The release notes may contain critical information regarding jumper settings, specific fixes, or other information to complete the upgrade.

Creating a Bootable Diskette

Use a DOS system to create the diskette as follows:

1. Insert a diskette in diskette drive A.
2. At the C:\ prompt, for an unformatted diskette, type:

```
format a: /s
```

or, for a diskette that is already formatted, type:

```
sys a:
```

4. Press <Enter>.

Creating the BIOS Upgrade Diskette

The BIOS upgrade file is a compressed self-extracting archive that contains the files you need to upgrade the BIOS.

1. Insert the bootable diskette into the diskette drive.
2. While in the directory into which you downloaded the upgrade file(s), type [filename] a: where “[filename]” is the name of the file that you downloaded. This command extracts the update files and places them onto the bootable diskette

Upgrading the BIOS

1. Place the bootable diskette containing the BIOS update files into the diskette drive of your system. Boot the system with the diskette in the drive.
2. A menu will appear with two options. Use option 1 to automatically update the system BIOS. Use option 2 to manually update the system BIOS and the User Binary.
3. If you selected option 1, to automatically update the system BIOS:
The system will execute the AfuDOS update utility to update the BIOS. When the update is complete, the utility will display a green box with a message that says “Completed Successfully.” The system will then reboot.
4. If you selected option 2, to manually update the BIOS or to update the flash memory, you can either select “Update Flash Memory From a File” or “Update System BIOS”:
 - Update Flash Memory From a File: When prompted for a file name, type BIOS.wph and press Enter.
 - Update System BIOS: The system will warn you that the BIOS will be updated. Verify the BIOS version is correct and press Enter to continue. When the update is complete, the utility will display a green box with a message that says “Completed Successfully.” The system will then reboot.
5. Wait while the BIOS files are updated. **Do not power down the system during the BIOS update process!** The system will reset automatically when the BIOS update process is completed. Remove the diskette from the diskette drive.
6. Check to make sure the BIOS version displayed during POST is the new version as the system reboots.
7. Enter Setup by pressing the F2 key during boot.
8. In Setup, press the F9 and <Enter> to set the parameters back to default values.

9. Re-enter the values you wrote down at the beginning of this process. Press F10 and <Enter> to exit BIOS Setup and Save Changes.
10. If you do not set the CMOS values back to defaults using the F9 key, the system may function erratically.

NOTE

You may encounter a CMOS Checksum error or other problem after reboot. If this happens, shut down the system and boot it again. CMOS checksum errors require that you enter Setup, check your settings, save your settings, and exit Setup.

Recovering the BIOS

In the rare event that the BIOS becomes damaged, a recovery process needs to be followed to return the system to service. Two methods are available to recover the BIOS: automatically with the crisis recovery diskette, and manually by moving a jumper on the system board. These methods are described below.

NOTE

BIOS recovery is the mode of last resort, used only when the main system BIOS will not come up.

Recovering the BIOS with the Crisis Recovery Diskette

Manually Recovering the BIOS

A BIOS recovery can be manually initiated. This option would be used only when the BIOS is corrupt, but the ROM checksum error does not occur during POST. To manually initiate a BIOS recovery, use the following steps:

1. Power down and unplug the system from the AC power source or the DC mains.
2. Move the recovery jumper at J1D1 from pins 13 and 14 to cover pins 14 and 15.
3. Insert a bootable diskette containing the file AMIBOOT.ROM into the A: diskette drive.
4. Plug the system into the AC power source or the DC mains and power it on.
5. A blue screen will be displayed and the recovery process will automatically run. The system will continue to beep throughout the recovery process. The recovery process is complete when the beeping stops.
6. Remove the diskette.
7. Power down and unplug the system from the AC power source or the DC mains.
8. Move the BIOS recovery jumper at J1D1 back to the original position, covering pins 13 and 14.
9. Plug the system into the AC power source or the DC mains and power it up to confirm that the recovery was successful.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the “clear” position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J1D1.

1. Power down the system and disconnect the AC power or the DC mains.
2. Open the server chassis.
3. Move the jumper from pins 5 and 6 to the Clear Password position, covering pins 6 and 7.
4. Reconnect the AC power or DC mains. Power up the system.
5. Power down the system and disconnect the AC power or the DC mains.
6. Return the Password Clear jumper to the spare location, covering pins 5 and 6.
7. Close the server chassis.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is located on jumper block J1D1.

1. Power down the system and disconnect the AC power or the DC mains.
2. Open the server.
3. Move the jumper from pins 1 and 2 to the Clear CMOS position, covering pins 2 and 3.
4. Reconnect the AC power or the DC mains. Power up the system.
5. When the system begins beeping, power it down and disconnect the AC power or the DC mains.
6. Return the CMOS Clear jumper to the original location, covering pins 1 and 2.
7. Close the server chassis, reconnect the AC power or the DC mains and power up the system.

4 Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

For any issue, first ensure you are using the latest firmware and files. Firmware upgrades include updates for BIOS, the mini baseboard management controller (mBMC), and the hot-swap controller (HSC). See “[Additional Information and Software](#)” for a link to the software updates. In addition to the server firmware and files, also update any drivers used for components you have installed in your system, such as video drivers, network drivers, and SCSI drivers.

Intel provides a package called the “Platform Confidence Test” that may help with your diagnostics. See “[Additional Information and Software](#)” for a link to this software.

If you are unable to resolve your server problems on your own, see “[Getting Help](#)” for assistance.

Resetting the System

Before going through in-depth troubleshooting, attempt first to perform reset your system using one of the methods below.

To do this:	Press:
Soft boot reset to clear the system memory and reload the operating system.	<Ctrl+Alt+Del>
Clear system memory, restart POST, and reload the operating system.	Reset button
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals.	Power off/on

Problems following Initial System Installation

Problems that occur at initial system startup are usually caused by an incorrect installation or configuration. Hardware failure is a less frequent cause. If the problem you are experiencing is with a specific software application, see “[Problems with Newly Installed Application Software](#).”

First Steps Checklist

- AC system only: Is AC power available at the wall outlet?
- DC system only: Is the DC mains connected
- Are the power supplies plugged in? Check the power cable on the back of the platform and at the power source.
- Are all cables correctly connected and secured?
- Are the processors fully seated in their sockets on the server board?
- Are all standoffs in the proper location and not touching any components, causing a potential short?
- Are all add-in PCI boards fully seated in their slots on the server board?
- Are all jumper settings on the server board correct?
- Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer’s documentation that comes with them. If applicable, ensure that there are no conflicts—for example, two add-in boards sharing the same interrupt.
- Are all peripheral devices installed correctly?
- If the system has a hard disk drive, is it properly formatted or configured?
- Are all device drivers properly installed?
- Are the configuration settings made in Setup correct?
- Is the operating system properly loaded? Refer to the operating system documentation.
- Did you press the system power on/off switch on the front panel to turn the server on (power on light should be lit)?
- AC system only: Is the system power cord properly connected to the system and plugged into a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V ?
- DC system only: Is the 48Vdc power properly grounded?
- Are all integrated components from the tested components lists? Check the tested memory list and the supported hardware and operating system list. See “[Additional Information and Software](#)” for links to the tested component lists.

Hardware Diagnostic Testing

This section provides a more detailed approach to identifying a hardware problem and locating its source.



CAUTION

Turn off devices before disconnecting cables: Before disconnecting any peripheral cables from the system, turn off the system and any external peripheral devices. Failure to do so can cause permanent damage to the system and/or the peripheral devices.

1. Turn off the system and all external peripheral devices. Disconnect each of device from the system, except for the keyboard and the video monitor.
2. AC system only: Make sure the system power cord is plugged into a properly grounded AC outlet.
3. DC system only: Make sure the system is correctly plugged into the DC mains and is properly grounded.
4. Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set its brightness and contrast controls to at least two thirds of their maximum ranges (see the documentation supplied with your video display monitor).
5. If the operating system normally loads from the hard disk drive, make sure there is disk in the CD-ROM or DVD-ROM drive.
6. If the power LED does light, attempt to boot from a CD-ROM / DVD-ROM disk.
7. Turn on the system. If the power LED does not light, see [“Power Light Does Not Light.”](#)

Verifying Proper Operation of Key System Lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check for the following:

- If system LEDs are illuminated, see [“LED Information”](#) for a description of the light and steps to take to correct the problem.

Confirming Loading of the Operating System

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see [“No Characters Appear on Screen.”](#)

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not light.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.
- System cooling fans do not rotate.
- Diskette drive activity light does not light.
- Hard disk drive activity light does not light.
- CD-ROM drive activity light does not light.
- There are problems with application software.
- The bootable CD-ROM is not detected.

Try the solutions below in the order given. If you cannot correct the problem, contact your service representative or authorized dealer for help.

Power Light Does Not Light

Check the following:

- Did you press the power-on button?
- Is the system operating normally? If so, the power LED might be defective or the cable from the front panel to the server board might be loose.
- AC system only: Have you securely plugged the server AC power cord into the power supply?
- DC system only: Have you securely plugged the server into the DC mains?
- Is the power supply correctly set to 110V or 235V, depending on your power output?
- Will other items plugged into the same power outlet function correctly?
- Remove all add-in cards and see if the system boots. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor complies with the system requirements.
- Remove the processor and re-seat it.

No Characters Appear on Screen

Check the following:

- Is the keyboard functioning? Test it by turning the “Num Lock” function on and off to make sure the Num Lock light is functioning.
- Is the video monitor plugged in and turned on? If you are using a switch box, is it switched to the correct system?
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Is the video monitor signal cable properly installed?
- Does this video monitor work correctly if plugged into a different system?
- Is the onboard video controller enabled in the BIOS?
- Remove all add-in cards and see if the video returns. If successful, add the cards back in one at a time with a reboot between each addition.
- Make sure the memory DIMMs comply with the system requirements.
- Make sure the memory DIMMs have been populated according to the system requirements.
- Remove the memory DIMMs and re-seat them.
- Make sure the processor complies with the system requirements.
- Remove the processor and re-seat it.

If you are using an add-in video controller board, do the following:

1. Verify that the video works using the onboard video controller.
2. Verify that the video controller board is fully seated in the server board connector.
3. Reboot the system for changes to take effect.
4. If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative.
5. If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer’s documentation.
- Are the video monitor’s signal and power cables properly installed?
- Does this video monitor work correctly if plugged into a different system?

System Cooling Fans Do Not Rotate Properly

If the system cooling fans are not operating properly, it is an indication of possible system component failure.

Check the following:

- Is the power-on light lit? If not, see [“Power Light Does Not Light”](#)
- Are any other front panel LEDs lit?
- Have any of the fan motors stopped? Use the server management subsystem to check the fan status.
- Have your fans speeded up in response to an overheating situation?
- Have your fans speeded up in response to a fan that has failed?
- Are the fan power connectors properly connected to the server board?
- Is the cable from the front panel board connected to the both the front panel board and to the server board?
- Are the power supply cables properly connected to the server board?
- Are there any shorted wires caused by pinched-cables or have power connector plugs been forced into power connector sockets the wrong way?

CD-ROM Drive or DVD-ROM Drive Activity Light Does Not Light

Check the following:

- Are the CD-ROM/DVD-ROM drive’s power and signal cables properly installed?
- Are all relevant switches and jumpers on the drive set correctly?
- Is the drive properly configured?

Cannot Connect to a Server

- Make sure the network cable is securely attached to the correct connector at the system back panel.
- Try a different network cable.
- Make sure you are using the correct and the current drivers. See [“Additional Information and Software”](#) for a link to the current drivers.
- Make sure the driver is loaded and the protocols are bound.
- Make sure the hub port is configured for the same duplex mode as the network controller.
- Make sure the correct networking software is installed.
- If you are directly connecting two servers (without a hub), you will need a crossover cable.
- Check the network controller LEDs next to the NIC connectors.

Problems with Network

The server hangs when the drivers are loaded.

- Certain drivers may require interrupts that are not shared with other PCI drivers. For these drivers, it may be necessary to alter settings so that interrupts are not shared. See the documentation that came with your PCI card(s) for information on changing interrupts..

Diagnostics pass but the connection fails.

- Make sure the network cable is securely attached.
- Make sure you specify the correct frame type in your NET.CFG file.

The controller stopped working when an add-in adapter was installed.

- Make sure the cable is connected to the port from the onboard network controller.
- Make sure your BIOS is current. See “[Additional Information and Software](#)” for a link to the current version.
- Make sure the other adapter supports shared interrupts. Make sure your operating system supports shared interrupts.
- Try reseating the add-in adapter.

The add-in adapter stopped working without apparent cause.

- Try reseating the adapter first; then try a different slot if necessary.
- The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- Run the diagnostics.

System Boots when Installing PCI Card

System Server Management features require full-time “standby” power. This means some parts of the system have power going to them whenever the power cord is plugged in, even if you have turned the system power off with the power button on the front panel. If you install a PCI card with the AC power cord plugged in or the DC mains attached, a signal may be sent to the command the system to boot. Before installing a PCI card, you should always:

- Turn off the server power by using the power button on the front of the system.
- Unplug the AC power cord or DC mains from the server.

Problems with Newly Installed Application Software

Problems that occur when you run new application software are usually related to the software, not the server hardware. Faulty equipment is unlikely, especially if other software runs correctly.

Check the following:

- Make sure the system meets the minimum hardware requirements for the software. See the software documentation.
- Make sure the software is properly installed and configured for the system. See the software documentation.
- Use only an authorized copy. Unauthorized copies often do not work.
- If you are running the software from a diskette, CD-ROM or DVD-ROM, try a different diskette.
- Make sure the correct device drivers installed.

If the problems persist, contact the software vendor's customer service representative.

Problems with Application Software that Ran Correctly Earlier

Problems that occur after the system hardware and software have been running correctly sometimes indicate equipment failure. However, they can also be caused by file corruption or changes to the software configuration.

Check the following:

- If you are running the software from a diskette, CD-ROM or DVD-ROM, try a different diskette.
- Uninstall and reinstall the software. Make sure all necessary files are installed.
- If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- If you suspect that a transient voltage spike, power outage, or brownout might have occurred, reload the software and try running it again. Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and the system not responding to user commands.



NOTE

Random errors in data files: If you are getting random errors in your data files, they may be getting corrupted by voltage spikes on your power line. If you are experiencing any of the above symptoms that might indicate voltage spikes on the power line, you may want to install a surge suppressor between the power outlet and the system power cord.

Devices are not Recognized under Device Manager (Windows* Operating System)

The Windows* operating systems do not include all of the drivers for the Intel® chipsets, onboard NICs, and other components. See “[Additional Information and Software](#)” for a link to the current drivers and chipset files.

Hard Drive(s) are not Recognized

Check the following:

- Make sure the drive is not disabled in BIOS Setup.
- Make sure the drive is connected correctly and that is plugged into the power supply.
- Make sure the drive is compatible. See “[Additional Information and Software](#)” for a link to the tested drives.
- Make sure you have not exceeded the power budget for the server. See “[Additional Information and Software](#)” for a link to software to check your power budget.
- If using SCSI drives, verify that each SCSI ID number is unique on the SCSI bus. See your drive documentation for details on setting the SCSI ID for your drives.

Bootable CD-ROM Is Not Detected

Check the following:

- Make sure the BIOS is configured to allow the CD-ROM to be the first bootable device.

LED Information

The Intel® Server Board TIGPT1U includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

LED Name	Function	Location	Color	Correction
ID	Aid in server identification from the front panel	Front Panel	Blue	Press ID LED button or user Server Management software to turn off the LED.
System fault	Visible fault warning	Front panel	Green or Amber	<ul style="list-style-type: none"> ▪ On = No Fault ▪ Green Blink = degraded ▪ Amber = critical error or non-recoverable ▪ Amber blink = non-critical
IDE activity	Front panel	Front panel	Green	Blinking = Activity. No action required.
Power LED	Identify the power state of the system	Front Panel	Green	<ul style="list-style-type: none"> ▪ Off = Power is off (off or S5) ▪ On = Power on or S0) ▪ Slow Blink = Low power state (S1 – S3)

BIOS Error Messages

When a recoverable error occurs during the POST, the BIOS displays an error message describing the problem.

Table 5. BIOS Error Messages

Error Message	Explanation
GA20 Error	An error occurred with Gate A20 when switching to protected mode during the memory test.
Pri Master HDD Error Pri Slave HDD Error Sec Master HDD Error Sec Slave HDD Error	Could not read sector from corresponding drive.
Pri Master Drive - ATAPI Incompatible Pri Slave Drive - ATAPI Incompatible Sec Master Drive - ATAPI Incompatible Sec Slave Drive - ATAPI Incompatible	Corresponding drive is not an ATAPI device. Run Setup to make sure device is selected correctly.
A: Drive Error	No response from diskette drive.
CMOS Battery Low	The battery may be losing power. Replace the battery soon.
CMOS Display Type Wrong	The display type is different than what has been stored in CMOS. Check Setup to make sure type is correct.
CMOS Checksum Bad	The CMOS checksum is incorrect. CMOS memory may have been corrupted. Run Setup to reset values.
CMOS Settings Wrong	CMOS values are not the same as the last boot. These values have either been corrupted or the battery has failed.
CMOS Date/Time Not Set	The time and/or date values stored in CMOS are invalid. Run Setup to set correct values.
DMA Error	Error during read/write test of DMA controller.
FDC Failure	Error occurred trying to access diskette drive controller.
HDC Failure	Error occurred trying to access hard disk controller.
Checking NVRAM.....	NVRAM is being checked to see if it is valid.
Update OK!	NVRAM was invalid and has been updated.
Updated Failed	NVRAM was invalid but was unable to be updated.
Keyboard Error	Error in the keyboard connection. Make sure keyboard is connected properly.
KB/Interface Error	Keyboard interface test failed.

continued

BIOS Error Messages (continued)

Error Message	Explanation
Memory Size Decreased	Memory size has decreased since the last boot. If no memory was removed, then memory may be bad.
Memory Size Increased	Memory size has increased since the last boot. If no memory was added, there may be a problem with the system.
Memory Size Changed	Memory size has changed since the last boot. If no memory was added or removed, then memory may be bad.
No Boot Device Available	System did not find a device to boot.
Off Board Parity Error	A parity error occurred on an off-board card. This error is followed by an address.
On Board Parity Error	A parity error occurred in onboard memory. This error is followed by an address.
Parity Error	A parity error occurred in onboard memory at an unknown address.
NVRAM / CMOS / PASSWORD cleared by Jumper	NVRAM, CMOS, and passwords have been cleared. The system should be powered down and the jumper removed.
<CTRL_N> Pressed	CMOS is ignored and NVRAM is cleared. User must enter Setup.

BIOS POST Beep Codes

The table below lists the POST error beep codes. Prior to system video initialization, the BIOS uses these beep codes to inform users of error conditions. The beep code occurs only when a critical error occurs or when the BIOS fails to boot to the operating system. Please note that not all error conditions are supported by BIOS beep codes.

Table 6. Beep Codes

Number of Beeps	Description
1	Refresh failure
2	Parity cannot be reset
3	First 64 Kb memory failure
4	Timer not operational
5	Processor failure (Reserved; not used)
6	8042 GateA20 cannot be toggled (memory failure or not present)
7	Exception interrupt error
8	Display memory R/W error
9	(Reserved; not used)
10	CMOS Shutdown register test error
11	Invalid BIOS (such as, POST module not found)

BIOS Recovery Beep Codes

Table 7. BIOS Recovery Beep Codes

Beeps	Reason
1	One long beep – video is active.
1-2	One long beep and two short beeps: Insert the BIOS recovery diskette.

An error or warning condition at boot can result in a series of beeps being issued known as "beep codes." These beeps have a code that identifies system or PCI card events. For example, some Intel® RAID controller cards have beep codes. Before checking for a system beep code error make sure the PCI card is not causing the beeping.

In the case of a Bootblock update, where video is not available for text messages to be displayed, speaker beeps are necessary to inform the user of errors. For beep codes associated with a Bootblock update refer to the *Intel® Server Board TIGPT1U Technical Product Specification*.

Boot Block POST Progress Codes

Table 8. Boot Block POST Progress Codes

	Diagnostic LED Decoder G=Green, R=Red, A=Amber				Description
	Hi			Low	
10h	Off	Off	Off	R	The NMI is disabled. Start Power-on delay. Initialization code checksum verified.
11h	Off	Off	Off	A	Initialize the DMA controller, perform the keyboard controller BAT test, start memory refresh, and enter 4 GB flat mode.
12h	Off	Off	G	R	Get start of initialization code and check BIOS header.
13h	Off	Off	G	A	Memory sizing.
14h	Off	G	Off	R	Test base 512K of memory. Return to real mode. Execute any OEM patches and set up the stack.
15h	Off	G	Off	A	Pass control to the uncompressed code in shadow RAM. The initialization code is copied to segment 0 and control will be transferred to segment 0.
16h	Off	G	G	R	Control is in segment 0. Verify the system BIOS checksum. If the system BIOS checksum is bad, go to checkpoint code E0h. Otherwise, going to checkpoint code D7h.
17h	Off	G	G	A	Pass control to the interface module.
18h	G	Off	Off	R	Decompress of the main system BIOS failed.
19h	G	Off	Off	A	Build the BIOS stack. Disable USB controller. Disable cache.

continued

BIOS Error Messages (continued)

	Diagnostic LED Decoder G=Green, R=Red, A=Amber				Description
	Hi			Low	
1Ah	G	Off	G	R	Uncompress the POST code module. Pass control to the POST code module.
1Bh	A	R	Off	R	Decompress the main system BIOS runtime code.
1Ch	A	R	Off	A	Pass control to the main system BIOS in shadow RAM.
E0h	R	R	R	Off	Start of recovery BIOS. Initialize interrupt vectors, system timer, DMA controller, and interrupt controller.
E8h	A	R	R	Off	Initialize extra module if present.
E9h	A	R	R	G	Initialize floppy controller.
Eah	A	R	A	Off	Try to boot floppy diskette.
Ebh	A	R	A	G	If floppy boot fails, initialize ATAPI hardware.
Ech	A	A	R	Off	Try booting from ATAPI CD-ROM drive.
Eeh	A	A	A	Off	Jump to boot sector.
Efh	A	A	A	G	Disable ATAPI hardware.

POST Progress Codes

Table 9. POST Progress Codes

	Diagnostic LED Decoder G=Green, R=Red, A=Amber				Description
	Hi			Low	
20h	Off	Off	R	Off	Uncompress various BIOS Modules
22h	Off	Off	A	Off	Verify password Checksum
24h	Off	G	R	Off	Verify CMOS Checksum.
26h	Off	G	A	Off	Read Microcode updates from BIOS ROM.
28h	G	Off	R	Off	Initializing the processors. Set up processor registers. Select least featured processor as the BSP.
2Ah	G	Off	A	Off	Go to Big Real Mode
2Ch	G	G	R	Off	Decompress INT13 module
2Eh	G	G	A	Off	Keyboard Controller Test: The keyboard controller input buffer is free. Next, issuing the BAT command to the keyboard controller
30h	Off	Off	R	R	Keyboard/Mouse port swap, if needed
32h	Off	Off	A	R	Write Command Byte 8042: The initialization after the keyboard controller BAT command test is done. The keyboard command byte will be written next.

continued

POST Progress Codes (continued)

34h	Off	G	R	R	Keyboard Init: The keyboard controller command byte is written. Next, issuing the pin 23 and 24 blocking and unblocking commands
36h	Off	G	A	R	Disable and initialize 8259
38h	G	Off	R	R	Detect Configuration Mode, such as CMOS clear.
3Ah	G	Off	A	R	Chipset Initialization before CMOS initialization
3Ch	G	G	R	R	Init System Timer: The 8254 timer test is over. Starting the legacy memory refresh test next.
3Eh	G	G	A	R	Check Refresh Toggle: The memory refresh line is toggling. Checking the 15 second on/off time next
40h	Off	R	Off	Off	Calculate CPU speed
42h	Off	R	G	Off	Init interrupt Vectors: Interrupt vector initialization is done.
44h	Off	A	Off	Off	Enable USB controller in chipset
46h	Off	A	G	Off	Initialize SMM handler. Initialize USB emulation.
48h	G	R	Off	Off	Validate NVRAM areas. Restore from backup if corrupted.
4Ah	G	R	G	Off	Load defaults in CMOS RAM if bad checksum or CMOS clear jumper is detected.
4Ch	G	A	Off	Off	Validate date and time in RTC.
4Eh	G	A	G	Off	Determine number of micro code patches present
50h	Off	R	Off	R	Load Micro Code To All CPUs
52h	Off	R	G	R	Scan SMBIOS GPNV areas
54h	Off	A	Off	R	Early extended memory tests
56h	Off	A	G	R	Disable DMA
58h	G	R	Off	R	Disable video controller
5Ah	G	R	G	R	8254 Timer Test on Channel 2
5Ch	G	A	Off	R	Enable 8042. Enable timer and keyboard IRQs. Set Video Mode: Initialization before setting the video mode is complete. Configuring the monochrome mode and color mode settings next.
5Eh	G	A	G	R	Init PCI devices and motherboard devices. Pass control to video BIOS. Start serial console redirection.
60h	Off	R	R	Off	Initialize memory test parameters
62h	Off	R	A	Off	Initialize AMI display manager Module. Initialize support code for headless system if no video controller is detected.
64h	Off	A	R	Off	Start USB controllers in chipset
66h	Off	A	A	Off	Set up video parameters in BIOS data area.
68h	G	R	R	Off	Activate ADM: The display mode is set. Displaying the power-on message next.
6Ah	G	R	A	Off	Initialize language module. Display splash logo.
6Ch	G	A	R	Off	Display Sign on message, BIOS ID and processor information.
6Eh	G	A	A	Off	Detect USB devices
70h	Off	R	R	R	Reset IDE Controllers
72h	Off	R	A	R	Displaying bus initialization error messages.

continued

POST Progress Codes (continued)

74h	Off	A	R	R	Display Setup Message: The new cursor position has been read and saved. Displaying the Hit Setup message next.
76h	Off	A	A	R	Ensure Timer Keyboard Interrupts are on.
78h	G	R	R	R	Extended background memory test start
7Ah	G	R	A	R	Disable parity and NMI reporting.
7Ch	G	A	R	R	Test 8237 DMA Controller: The DMA page register test passed. Performing the DMA Controller 1 base register test next
7Eh	G	A	A	R	Init 8237 DMA Controller: The DMA controller 2 base register test passed. Programming DMA controllers 1 and 2 next.
80h	R	Off	Off	Off	Enable Mouse and Keyboard: The keyboard test has started. Clearing the output buffer and checking for stuck keys. Issuing the keyboard reset command next
82h	R	Off	G	Off	Keyboard Interface Test: A keyboard reset error or stuck key was found. Issuing the keyboard controller interface test command next.
84h	R	G	Off	Off	Check Stuck Key Enable Keyboard: The keyboard controller interface test completed. Writing the command byte and initializing the circular buffer next.
86h	R	G	G	Off	Disable parity NMI: The command byte was written and global data initialization has completed. Checking for a locked key next
88h	A	Off	Off	Off	Display USB devices
8Ah	A	Off	G	Off	Verify RAM Size: Checking for a memory size mismatch with CMOS RAM data next
8Ch	A	G	Off	Off	Lock out PS/2 keyboard/mouse if unattended start is enabled.
8Eh	A	G	G	Off	Init Boot Devices: The adapter ROM had control and has now returned control to BIOS POST. Performing any required processing after the option ROM returned control.
90h	R	Off	Off	R	Display IDE mass storage devices.
92h	R	Off	G	R	Display USB mass storage devices.
94h	R	G	Off	R	Report the first set of POST Errors To Error Manager.
96h	R	G	G	R	Boot Password Check: The password was checked. Performing any required programming before Setup next.
98h	A	Off	Off	R	Float Processor Initialize: Performing any required initialization before the coprocessor test next.
9Ah	A	Off	G	R	Enable Interrupts 0,1,2: Checking the extended keyboard, keyboard ID, and NUM Lock key next. Issuing the keyboard ID command next
9Ch	A	G	Off	R	Init FDD Devices. Report second set of POST errors To Error messenger
9Eh	A	G	G	R	Extended background memory test end
A0h	R	Off	R	Off	Prepare And Run Setup: Error manager displays and logs POST errors. Waits for user input for certain errors. Execute setup.
A2h	R	Off	A	Off	Set Base Expansion Memory Size
A4h	R	G	R	Off	Program chipset setup options, build ACPI Tables, build INT15h E820h table
A6h	R	G	A	Off	Set Display Mode

continued

POST Progress Codes (continued)

A8h	A	Off	R	Off	Build SMBIOS table and MP tables.
Aah	A	Off	A	Off	Clear video screen.
Ach	A	G	R	Off	Prepare USB controllers for operating system
Aeh	A	G	A	Off	One Beep to indicate end of POST. No beep if silent boot is enabled.
000h	Off	Off	Off	Off	POST completed. Passing control to INT 19h boot loader next.

Regulatory and Certification Information

Product Regulatory Compliance

Product Safety Compliance

The Server Board TIGPT1U complies with the following safety requirements:

- UL60950 – CSA 60950(USA / Canada)
- EN60950 (Europe)
- IEC60950 (International)
- CB Certificate & Report, IEC60950 (report to include all country national deviations)
- GS License (Germany)
- GOST R 50377-92 - License (Russia)
- Belarus License (Belarus)
- Ukraine License (Ukraine)
- CE - Low Voltage Directive 73/23/EEE (Europe)
- IRAM Certification (Argentina)
- GB4943- CNCA Certification (China)

Product EMC Compliance – Class A Compliance

The Server Board TIGPT1U has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations when installed a compatible Intel® host system. For information on compatible host system(s) refer to Intel's Server Builder Web site or contact your local Intel representative.

- FCC /ICES-003 - Emissions (USA/Canada) Verification
- CISPR 22 – Emissions (International)
- EN55022 - Emissions (Europe)
- EN55024 - Immunity (Europe)
- EN61000-3-2 - Harmonics (Europe)
- EN61000-3-3 - Voltage Flicker (Europe)
- CE – EMC Directive 89/336/EEC (Europe)
- VCCI Emissions (Japan)
- AS/NZS 3548 Emissions (Australia / New Zealand)
- BSMI CNS13438 Emissions (Taiwan)
- GOST R 29216-91 Emissions (Russia)
- GOST R 50628-95 Immunity (Russia)
- Belarus License (Belarus)
- Ukraine License (Ukraine)
- RRL MIC Notice No. 1997-41 (EMC) & 1997-42 (EMI) (Korea)
- GB 9254 - CNCA Certification (China)
- GB 17625 - (Harmonics) CNCA Certification (China)





Certifications / Registrations / Declarations

- UL Certification (US/Canada)
- CE Declaration of Conformity (CENELEC Europe)
- FCC/ICES-003 Class A Attestation (USA/Canada)
- VCCI Certification (Japan)
- C-Tick Declaration of Conformity (Australia)
- MED Declaration of Conformity (New Zealand)
- BSMI Certification (Taiwan)
- GOST R Certification / License (Russia)
- Belarus Certification / License (Belarus)
- RRL Certification (Korea)
- IRAM Certification (Argentina)
- CNCA Certification (China)
- Ecology Declaration (International)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 10. Product Certification Markings

Regulatory Compliance	Country	Marking
cULus Listing Marks	USA/Canada	
GS Mark	Germany	 
CE Mark	Europe	
FCC Marking (Class A)	USA	This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. Manufactured by Intel Corporation
EMC Marking (Class A)	Canada	CANADA ICES-003 CLASS A CANADA NMB-003 CLASSE A
VCCI Marking (Class A)	Japan	この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。VCCI-A

continued

Table 11. Product Certification Markings

Regulatory Compliance	Country	Marking
BSMI Certification Number & Class A Warning	Taiwan	
		警告使用者： 這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策
GOST R Marking	Russia	
RRL MIC Mark	Korea	
China Compulsory Certification Mark	China	

Electromagnetic Compatibility Notices

FCC (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions related to the EMC performance of this product, contact:

Intel Corporation
 5200 N.E. Elam Young Parkway
 Hillsboro, OR 97124
 1-800-628-8686

Regulatory and Compliance Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class A or B limits may be attached to this computer product. Operation with noncompliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded may result in interference to radio and TV reception.

Industry Canada (ICES-003)

Cet appareil numérique respecte les limites bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le Ministre Canadien des Communications.

English translation of the notice above:

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

Europe (CE Declaration of Conformity)

This product has been tested in accordance too, and complies with the Low Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC). The product has been marked with the CE Mark to illustrate its compliance.

VCCI (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the notice above:

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

BSMI (Taiwan)

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，
可能會造成射頻干擾，在這種情況下，使用者會
被要求採取某些適當的對策

The BSMI Certification Marking and EMC warning is located on the outside rear area of the product.

Korean RRL Compliance



1. 기기의 명칭(모델명) :
2. 인증번호 :
3. 인증받은 자의 상호 :
4. 제조년월일 :
5. 제조자/제조국가 :

English translation of the notice above:

1. Type of Equipment (Model Name): On License and Product
2. Certification No.: On RRL certificate. Obtain certificate from local Intel representative
3. Name of Certification Recipient: Intel Corporation
4. Date of Manufacturer: Refer to date code on product
5. Manufacturer/Nation: Intel Corporation/Refer to country of origin marked on product

Regulated Specified Components

To maintain the UL listing and compliance to other regulatory certifications and/or declarations, the following regulated components must be used and conditions adhered to. Interchanging or use of other component will void the UL listing and other product certifications and approvals.

Updated product information for configurations can be found on the Intel Server Builder Web site at the following URL:

<http://channel.intel.com/go/serverbuilder>

If you do not have access to Intel's Web address, please contact your local Intel representative.

- **Server Chassis** (base chassis is provided with power supply and fans) UL listed.
- **Server board** you must use an Intel server board—UL recognized.
- **Add-in boards** must have a printed wiring board flammability rating of minimum UL94V-1. Add-in boards containing external power connectors and/or lithium batteries must be UL recognized or UL listed. Any add-in board containing modem telecommunication circuitry must be UL listed. In addition, the modem must have the appropriate telecommunications, safety, and EMC approvals for the region in which it is sold.
- **Peripheral Storage Devices** must be UL recognized or UL listed accessory and TUV or VDE licensed. Maximum power rating of any one device is 19 watts. Total server configuration is not to exceed the maximum loading conditions of the power supply.

Getting Help

World Wide Web

<http://support.intel.com/support/motherboards/server/TIGPT1U>

Telephone

All calls are billed US \$25.00 per incident, levied in local currency at the applicable credit card exchange rate plus applicable taxes. (Intel reserves the right to change the pricing for telephone support at any time without notice).

Before calling, fill out an “[Intel® Server Issue Report Form](#).” A sample form is provided on the following pages. However, for the fastest service, please submit your form via the Internet.

In U.S. and Canada		1-800-404-2284	
In Europe			
UK	0870 6072439	Finland	9 693 79297
France	01 41 918529	Denmark	38 487077
Germany	069 9509 6099	Norway	23 1620 50
Italy	02 696 33276	Sweden	08 445 1251
Spain	91 377 8166	Holland	020 487 4562
In Asia-Pacific region			
Australia	1800 649931	Indonesian	001-803 65 7249
Hong Kong	852 2 844 4456	Malaysia	1-800 80 1390
Korea	822 767 2595	New Zealand	0800 444 365
PRC	800 820 1100	Pakistan	632 6368415 (IDD via Philippines)
Singapore	65 213-1311	Philippines	1-800 1 651 0117
Taiwan	2 2545-1640	Thailand	1-800 6310003
India	0006517-830 3634	Vietnam	632 6368416 (IDD via Philippines)
In Japan			
0120-868686 (Domestic)		81-298-47-0800 (outside country)	
In Latin America			
Brazil	0021-0811-408-5540	Ecuador	999-119, 800-628-8686 (via AT&T)
Mexico	001-800-628-8686	Guatemala	99-99-190, 800-628-8686 (via AT&T)
Colombia	980-9-122-118	Venezuela	800-11-120, 800-628-8686 (via AT&T)
Costa Rica	0-800-011-0395	Argentina	001-800-222-1001, 800-628-8686 (via AT&T)
Panama	001-800-628-8686	Paraguay	008-11, 800-628-8686 (via AT&T)
Chile	800-532-992	Peru	0-800-50000, 800-628-8686 (via AT&T)
Miami	1-800-621-8423	Uruguay	000-410, 800-628-8686 (via AT&T)

For an updated support contact list, see <http://www.intel.com/support/9089.htm/>

Intel® Server Issue Report Form

NOTE

An on-line / automatic submission version of this form is available at <http://support.intel.com/support/motherboards/server/TIGPT1U> . For the fastest service, please submit your form via the Internet.

Date Submitted: _____

Company Name: _____

Contact Name: _____

Email Address: _____

Intel Server Product: _____

Priority (Critical, Hot, High, Low): _____

Brief Problem Description. Provide a brief description below. See the last page for space to include a detailed problem description.

Board / Chassis Information

Baseboard Revision – PBA#:	DIMM Configuration
Baseboard Serial Number:	DIMM1A MB:
CPU1 Speed/Stepping/Spec:	DIMM1A Vendor/part number:
System BIOS Version:	DIMM1B MB:
HSC Firmware Version:	DIMM1B Vendor/part number:
Platform Model	DIMM2A MB:
<input type="checkbox"/> Intel TIGPT1U	DIMM2A Vendor/part number:
	DIMM2B MB:
	DIMM2B Vendor/part number:

Operating System Information

Operating System _____

Version _____

Service Pack _____

Peripheral Information

Check each box below that is used, and provide the requested information

Peripheral	Card Or Peripheral Description	Driver Revision	IRQ #	I/O Base Address	FW Rev#
------------	--------------------------------	-----------------	-------	------------------	---------

P64 Segment B (PCI-X 64/66)

PCI Slot 1

Video

On-Board Video

Add-in Video

NIC

On-Board NIC1
(10/100/1000 Mb)

On-Board NIC2
(10/100/1000 Mb)

Hard Drive Information:

SCSI # of drives installed: _____
Make/Model/Firmware Revision _____

Server Issue Report Form

Warranty

Limited Warranty for Intel® Chassis Subassembly Products

Intel warrants that the Products (defined herein as the Intel® chassis subassembly and all of its various components and software delivered with or as part of the Products) to be delivered hereunder, if properly used and installed, will be free from defects in material and workmanship and will substantially conform to Intel's publicly available specifications for a period of three (3) years after the date the Product was purchased from an Intel authorized distributor. Software of any kind delivered with or as part of products is expressly provided "as is" unless specifically provided for otherwise in any software license accompanying the software.

If any Product furnished by Intel which is the subject of this Limited Warranty fails during the warranty period for reasons covered by this Limited Warranty, Intel, at its option, will:

- REPAIR the Product by means of hardware and/or software; OR
- REPLACE the Product with another Product; OR
- REFUND the then-current value of the Product if Intel is unable to repair or replace the Product.

If such Product is defective, transportation charges for the return of Product to buyer within the USA will be paid by Intel. For all other locations, the warranty excludes all costs of shipping, customs clearance, and other related charges. Intel will have a reasonable time to make repairs or to replace Product or to refund the then-current value of the Product.

In no event will Intel be liable for any other costs associated with the replacement or repair of Product, including labor, installation or other costs incurred by buyer and in particular, any costs relating to the removal or replacement of any product soldered or otherwise permanently affixed to any printed circuit board.

This Limited Warranty, and any implied warranties that may exist under state law, apply only to the original purchaser of the Product.

Extent of Limited Warranty

Intel does not warrant that Products to be delivered hereunder, whether delivered stand-alone or integrated with other Products, including without limitation semiconductor components, will be free from design defects or errors known as "errata." Current characterized errata are available upon request.

This Limited Warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing.

Warranty Limitations and Exclusions

These warranties replace all other warranties, expressed or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Intel makes no expressed warranties beyond those stated here. Intel disclaims all other warranties, expressed or implied including, without limitation, implied warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not allow the exclusion of implied warranties, so this limitation may not apply.

All expressed and implied warranties are limited in duration to the limited warranty period. No warranties apply after that period. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

Limitations of Liability

Intel's responsibility under this, or any other warranty, implied or expressed, is limited to repair, replacement, or refund, as set forth above. These remedies are the sole and exclusive remedies for any breach of warranty. Intel is not responsible for direct, special, incidental, or consequential damages resulting from any breach of warranty under another legal theory including, but not limited to, lost profits, downtime, goodwill, damage to or replacement of equipment and property, and any costs of recovering, reprogramming, or reproducing any program or data stored in or used with a system containing this product. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights that vary from jurisdiction to jurisdiction.

Any and all disputes arising under or related to this Limited Warranty shall be adjudicated in the following forums and governed by the following laws: for the United States of America, Canada, North America, and South America, the forum shall be Santa Clara, California, USA, and the applicable law shall be that of the State of California, USA; for the Asia Pacific region, the forum shall be Singapore and the applicable law shall be that of Singapore; for Europe and the rest of the world, the forum shall be London and the applicable law shall be that of the United Kingdom.

In the event of any conflict between the English language version and any other translated version(s) of this Limited Warranty, the English language version shall control.

How to Obtain Warranty Service

To obtain warranty service for this Product, you may contact Intel or your authorized distributor.

North America and Latin America To obtain warranty repair for the product, please go to the following Web site to obtain instructions:

<http://support.intel.com/support/motherboards/draform.htm>

In Europe and in Asia Contact your original authorized distributor for warranty service.

Any replacement Product is warranted under this written warranty and is subject to the same limitations and exclusions for the remainder of the original warranty period.

Telephone Support

If you cannot find the information you need on Intel's World Wide Web site (<http://www.intel.com/>), call your local distributor or an Intel Customer Support representative.

Country	Customer Support Telephone Number	Hours (Monday-Friday)	Billing
United States and Canada	1-800-404-2284	7:00–17:00 PST	Credit card calls \$25.00/incident
UK	0870 6072439	UK time	Credit Card Calls
France	01 41 918529	8:00–17:00 (M, Th, F)	\$25.00/incident
Germany	069 9509 6099	8:00–16:00 (Tu–W)	Levied in local currency at the applicable credit card exchange rate plus applicable VAT
Italy	02 696 33276		
Spain	91 377 8166		
Finland	9 693 79297		
Denmark	38 487077		
Norway	23 1620 50		
Sweden	08 445 1251		
Holland	020 487 4562		
Asia-Pacific		Singapore local time	
Australia	+1-800-649-931	Oct–April: 6:00–16:00	
Hong Kong	+852-2-844-4456	April–Oct: 5:00–16:00	
Korea	+822-767-2595		
Philippines	1800-1-651-0117		
PRC	(800)8201100		
Singapore	(65)2131311		
Taiwan	2 27189915		
Malaysia	1800-801390		
New Zealand	0800-444365		
Indonesia	803-65-7249		
Thailand	800-6310003		
Vietnam	IDD call +63(2)6368416 (0006517) 830-3634		
India	Manual toll free. From India, you need an IDD-equipped phone. IDD call +63(2)6368415		
Pakistan			

Returning a Defective Product

Before returning any product, call your authorized dealer/distribution authority.