



Telecom Datacenter Appliances

Innovative Platforms for Next Generation Network Infrastructure

HCM-1030 User Manual

Version: 1.2

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Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:



Note: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



Warning: This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

To obtain additional documentation resources and software updates for your system, please visit the [Lanner Download Center](#). As certain categories of documents are only available to users who are logged in, please be registered for a Lanner Account at <http://www.lannerinc.com/> to access published documents and downloadable resources.

For troubleshooting the issues with your system, please visit the [Lanner Q&A](#) page for diagnostic procedures and troubleshooting steps.

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Compliances and Certification

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

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 when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Notice

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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. The operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.

Safety Guidelines

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- ▶ Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- ▶ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- ▶ Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- ▶ Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.

Lithium Battery Caution:

- ▶ Risk of Explosion if Battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- ▶ Installation only by a trained electrician or only by an electrically trained person who knows all English Installation and Device Specifications which are to be applied.
- ▶ Do not carry the handle of power supplies when moving to another place.
- ▶ The machine can only be used in a fixed location such as labs or computer facilities.

Operating Safety

- ▶ Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- ▶ Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
- ▶ Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- ▶ Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Mounting Installation Precaution

Environment:

- ▶ Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- ▶ Elevated Operating Ambient – If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- ▶ Reduced Air Flow – Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading.
- ▶ Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- ▶ Circuit Overloading – Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- ▶ Reliable Earthing – Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- ▶ Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the unit or use of inappropriate installation components.

Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- ▶ Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- ▶ Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- ▶ Portez des lunettes de sécurité pour protéger vos yeux.
- ▶ N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- ▶ Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- ▶ Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

Avertissement concernant la pile au lithium

- ▶ Risque d'explosion si la pile est remplacée par une autre d'un mauvais type.
- ▶ Jetez les piles usagées conformément aux instructions.
- ▶ L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- ▶ Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.
- ▶ La machine ne peut être utilisée qu'à un lieu fixe comme en laboratoire, salle d'ordinateurs ou salle de classe.

Sécurité de fonctionnement

L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air suffisante.

- ▶ Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- ▶ Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- ▶ Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- ▶ Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

Consignes de sécurité électrique

- ▶ Avant d'allumer l'appareil, reliez le câble de mise à la terre de l'équipement à la terre.
- ▶ Une bonne mise à la terre (connexion à la terre) est très importante pour protéger l'équipement contre les effets néfastes du bruit externe et réduire les risques d'électrocution en cas de foudre.
- ▶ Pour désinstaller l'équipement, débranchez le câble de mise à la terre après avoir éteint l'appareil.
- ▶ Un câble de mise à la terre est requis et la zone reliant les sections du conducteur doit faire plus de 4 mm² ou 10 AWG.

Revision History

Version	Date	Descriptions
1.0	2018/09/26	1 st Official Release
1.1	2018/12/05	Modified Front Panel (removed F3/F4/F5)
1.2	2022/4/14	Model name change to HCM-1030

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CHAPTER 1: PRODUCT OVERVIEW

The HCM-1030 switch blade provides 6x 100GbE QSFP28, 4x 40GbE QSFP+ and 16x 10GbE SFP+ fabric interface. It uses Broadcom StrataXGS Tomahawk BCM56960 switch controller. It can be installed into Lanner HTCA-6000 Series network appliances to provide 100/40/10GbE fabric connectivity.

- ▶ Fabric interface switch blade with 6x 100GbE QSFP28, 4x 40GbE QSFP+ and 16x 10GbE SFP+
- ▶ Broadcom StrataXGS Tomahawk BCM56960 3.2Tbps bandwidth Multilayer Switch
- ▶ Compatible with HTCA-6000 Series

Ordering Information

SKU No.	Description
HCM-1030E	6x 100GbE QSFP28, 4x 40GbE QSFP+, and 16x 10GbE SFP+ Switch Blade for HTCA-6000 Series

System Specifications

Model	HCM-1030	
Controller	Broadcom StrataXGS Tomahawk BCM56960 3.2Tbps bandwidth Multilayer Switch Fabric	
Fabric Interface	Up to 12x 100GbE Fabric Interface channels for 6-blade system Up to 4x 100GbE Fabric Interface channels for 2-blade system	
Front Panel Interface	6x 100GbE QSFP28 4x 40GbE QSFP+ 16x 10GbE SFP+	
System Compatibility	HTCA-6000 Series	
Environmental Parameters	Temperature	0 °C to 40°C Operating -40 °C to 70°C Storage
	Humidity (RH)	5% to 90% Non-Condensing
System Dimensions	(WxDxH)	283.68mm x 40 mm x 187.46mm (11.17" x 1.57" x 7.38")
	Weight	1 kg (2.2 lbs)
Certification	CE	Class A
	FCC	Class A

Front Panel

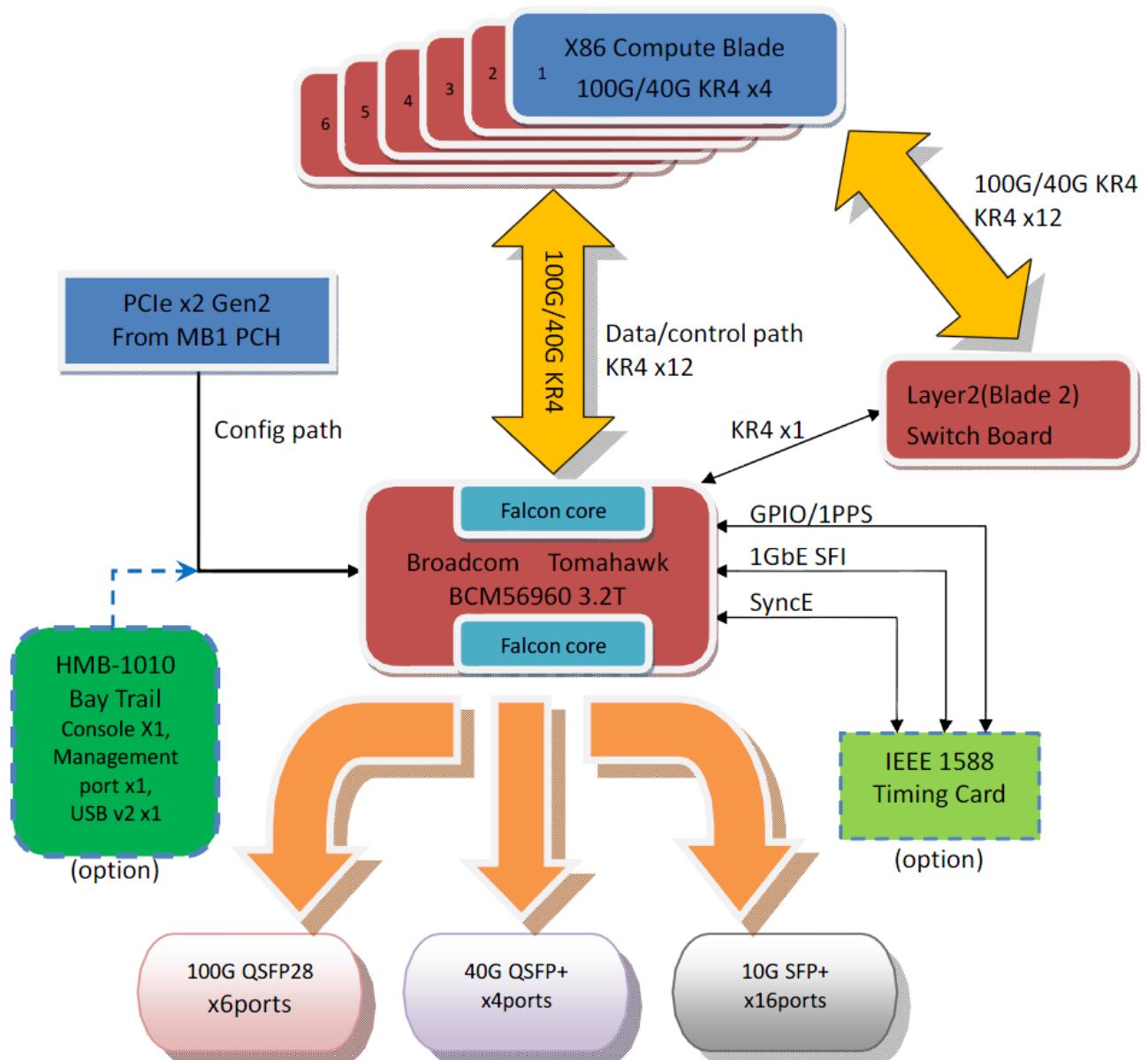


No.	Description
F1	6x 100GbE QSFP28 ports
F2	4x 40GbE QSFP+ ports
F3	16x 10GbE SFP+ ports

CHAPTER 2: MOTHERBOARD INFORMATION

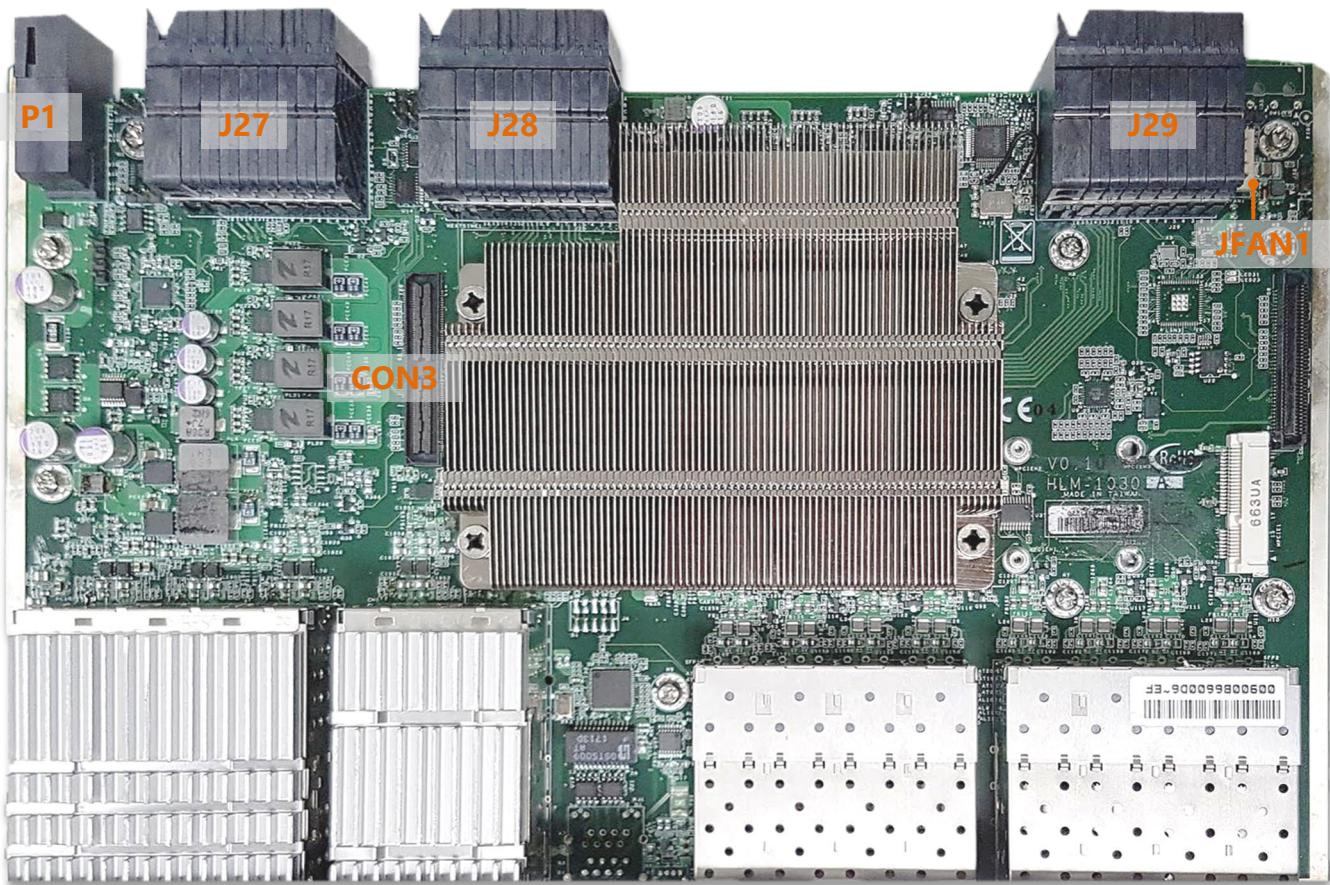
Block Diagram

The block diagram indicates how data flows among components on the motherboard. Please refer to the following figure for your motherboard's layout design.



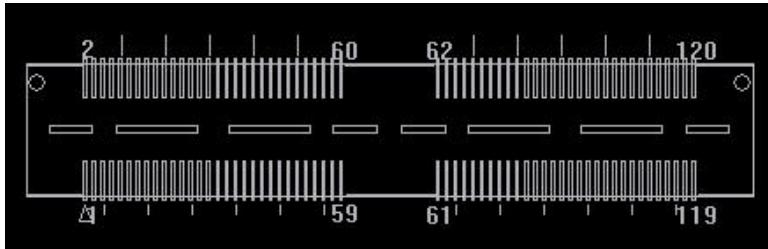
Motherboard Layout

The motherboard layout shows the connectors and jumpers on the board. Refer to the following picture as a reference of the pin assignments and the internal connectors.



Internal Jumper & Connectors

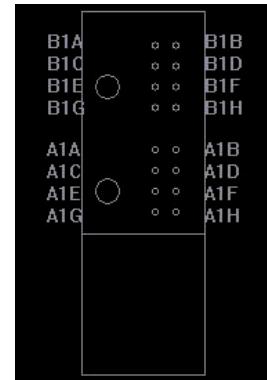
CON3: IEEE1588 Timing Card connector



Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	+12V	2	GND	61	NC	62	BSC_SCLK
3	+12V	4	GND	63	GND	64	MDIO
5	+12V	6	GND	65	NC	66	MDC
7	NC	8	FC5_TP3	67	GND	68	GND
9	NC	10	FC5_TN3	69	NC	70	NC
11	GND	12	GND	71	GND	72	NC
13	NC	14	FC5_RP3	73	25M_CLKP	74	TS_GP0_SYNC
15	NC	16	FC5_RN3	75	25M_CLKN	76	NC
17	GND	18	GND	77	GND	78	NC
19	NC	20	MGT_TP0	79	NC	80	TS_GP1_SYNC
21	NC	22	MGT_TN0	81	NC	82	GND
23	GND	24	GND	83	NC	84	IP_GPIO3_SYNC
25	NC	26	MGT_RP0	85	NC	86	NC
27	NC	28	MGT_RN0	87	GND	88	NC
29	GND	30	GND	89	156_CLKP	90	NC
31	NC	32	NC	91	156_CLKN	92	GND
33	NC	34	NC	93	GND	94	IP_GPIO1_4K
35	GND	36	GND	95	NC	96	IP_GPIO2_1PPS
37	NC	38	NC	97	NC	98	GND
39	NC	40	NC	99	GND	100	Module_Reset#
41	GND	42	GND	101	N/A	102	N/A
43	NC	44	NC	103	N/A	104	N/A
45	NC	46	NC	105	N/A	106	N/A
47	GND	48	GND	107	N/A	108	N/A
49	DPLL_CLK2	50	NC	109	N/A	110	N/A
51	GND	52	UART_TX	111	N/A	112	N/A
53	DPLL_CLK1	54	UART_RX	113	N/A	114	N/A
55	GND	56	NC	115	N/A	116	N/A
57	NC	58	NC	117	N/A	118	N/A
59	GND	60	BSC_SDAT	119	N/A	120	N/A

P1: Power Connector (Press-fit)

Pin	Description	Pin	Description
B1A	+12V	A1A	GND
B1B	+12V	A1B	GND
B1C	+12V	A1C	GND
B1D	+12V	A1D	GND
B1E	+12V	A1E	GND
B1F	+12V	A1F	GND
B1G	+12V	A1G	GND
B1H	+12V	A1H	GND



JFAN1: Fan Connector

Pin	Description
1	GND
2	P12V
3	TECH_FAN2
4	TECH_FAN1
5	FAN PWM Out



J27: PCIe Card Connector

	12	13	14	15	16
A	BOARD_ID0	GND	HP_PWRON#	GND	HP_BUTTON
B	PRESENT#	LC_PWRGD	THERM_ALARM#	HP_PWROK	HP_LED
C	GND	BOARD_ID1	GND	HP_PWRFAIL#	GND
D	P5V	GND	PCH_PCIE_RN1	GND	PCH_PCIE_TN1
E	P5V	PCH_PCIE_RN0	PCH_PCIE_RP1	PCH_PCIE_TN0	PCH_PCIE_TP1
F	GND	PCH_PCIE_RP0	GND	PCH_PCIE_TP0	GND
G	IPMI_DATA	GND	FC19_RN1	GND	FC19_RN3
H	IPMI_CLK	FC19_RN0	FC19_RP1	FC19_RN2	FC19_RP3
J	GND	FC19_RP0	GND	FC19_RP2	GND
K	PCIE_RESET#	GND	FC19_TN1	GND	FC19_TN3
L	WATCH_DOG#	FC19_TN0	FC19_TP1	FC19_TN2	FC19_TP3
M	GND	FC19_TP0	GND	FC19_TP2	GND
N	SMB_CH2_DATA	GND	FC18_RN1	GND	FC18_RN3
O	SMB_CH2_CLK	FC18_RN0	FC18_RP1	FC18_RN2	FC18_RP3
P	GND	FC18_RP0	GND	FC18_RP2	GND
R	MDC0	GND	FC18_TP2	GND	FC18_TP0
S	MDIO0	FC18_TP3	FC18_TN2	FC18_TP1	FC18_TN0
T	GND	FC18_TN3	GND	FC18_TN1	GND

J28: KR4 Board-to Board Connector

	1	2	3	4	5	6	7	8
A	GND	FC6_RN1	GND	FC6_RN3	GND	FC9_RN2	GND	FC9_RN0
B	FC6_RN0	FC6_RP1	FC6_RN2	FC6_RP3	FC9_RN3	FC9_RP2	FC9_RN1	FC9_RP0
C	FC6_RP0	GND	FC6_RP2	GND	FC9_RP3	GND	FC9_RP1	GND
D	GND	FC6_TN1	GND	FC6_TN3	GND	FC9_TN0	GND	FC9_TN1
E	FC6_TN0	FC6_TP1	FC6_TN2	FC6_TP3	FC9_TN3	FC9_TP0	FC9_TN2	FC9_TP1
F	FC6_TP0	GND	FC6_TP2	GND	FC9_TP3	GND	FC9_TP2	GND
G	GND	FC7_RN2	GND	FC7_RN0	GND	FC10_RN1	GND	FC10_RN3
H	FC7_RN3	FC7_RP2	FC7_RN1	FC7_RP0	FC10_RN0	FC10_RP1	FC10_RN2	FC10_RP3
J	FC7_RP3	GND	FC7_RP1	GND	FC10_RP0	GND	FC10_RP2	GND
K	GND	FC7_TN2	GND	FC7_TN0	GND	FC10_TN1	GND	FC10_TN3
L	FC7_TN3	FC7_TP2	FC7_TN1	FC7_TP0	FC10_TN0	FC10_TP1	FC10_TN2	FC10_TP3
M	FC7_TP3	GND	FC7_TP1	GND	FC10_TP0	GND	FC10_TP2	GND
N	GND	FC8_RN1	GND	FC8_RN3	GND	FC11_RN1	GND	FC11_RN3
O	FC8_RN0	FC8_RP1	FC8_RN2	FC8_RP3	FC11_RN0	FC11_RP1	FC11_RN2	FC11_RP3
P	FC8_RP0	GND	FC8_RP2	GND	FC11_RP0	GND	FC11_RP2	GND
R	GND	FC8_TN1	GND	FC8_TN3	GND	FC11_TN2	GND	FC11_TN0
S	FC8_TN0	FC8_TP1	FC8_TN2	FC8_TP3	FC11_TN3	FC11_TP2	FC11_TN1	FC11_TP0
T	FC8_TP0	GND	FC8_TP2	GND	FC11_TP3	GND	FC11_TP1	GND

	9	10	11	12	13	14	15	16
A	GND	FC12_RN1	GND	FC12_RN3	GND	FC15_RN0	GND	FC15_RN3
B	FC12_RN0	FC12_RP1	FC12_RN2	FC12_RP3	FC15_RN1	FC15_RP0	FC15_RN2	FC15_RP3
C	FC12_RP0	GND	FC12_RP2	GND	FC15_RP1	GND	FC15_RP2	GND
D	GND	FC12_TN2	GND	FC12_TN0	GND	FC15_TN2	GND	FC15_TN0
E	FC12_TN3	FC12_TP2	FC12_TN1	FC12_TP0	FC15_TN3	FC15_TP2	FC15_TN1	FC15_TP0
F	FC12_TP3	GND	FC12_TP1	GND	FC15_TP3	GND	FC15_TP1	GND
G	GND	FC13_RN1	GND	FC13_RN3	GND	FC16_RN2	GND	FC16_RN0
H	FC13_RN0	FC13_RP1	FC13_RN2	FC13_RP3	FC16_RN3	FC16_RP2	FC16_RN1	FC16_RP0
J	FC13_RP0	GND	FC13_RP2	GND	FC16_RP3	GND	FC16_RP1	GND
K	GND	FC13_TN2	GND	FC13_TN0	GND	FC16_TN1	GND	FC16_TN3
L	FC13_TN3	FC13_TP2	FC13_TN1	FC13_TP0	FC16_TN0	FC16_TP1	FC16_TN2	FC16_TP3
M	FC13_TP3	GND	FC13_TP1	GND	FC16_TP0	GND	FC16_TP2	GND
N	GND	FC14_RP1	GND	FC14_RP3	GND	FC17_RN1	GND	FC17_RN3
O	FC14_RP0	FC14_RN1	FC14_RP2	FC14_RN3	FC17_RN0	FC17_RP1	FC17_RN2	FC17_RP3
P	FC14_RN0	GND	FC14_RN2	GND	FC17_RP0	GND	FC17_RP2	GND
R	GND	FC14_TN2	GND	FC14_TN0	GND	FC17_TN2	GND	FC17_TN0
S	FC14_TN3	FC14_TP2	FC14_TN1	FC14_TP0	FC17_TN3	FC17_TP2	FC17_TN1	FC17_TP0
T	FC14_TP3	GND	FC14_TP1	GND	FC17_TP3	GND	FC17_TP1	GND

J29: PCIe Card Connector

	12	13	14	15	16
A	FC4_RN3	GND	FC4_RN1	GND	PCIE_CLKN
B	FC4_RP3	FC4_RN2	FC4_RP1	FC4_RN0	PCIE_CLKP
C	GND	FC4_RP2	GND	FC4_RP0	GND
D	NC	GND	FC4_TP1	GND	FC4_TP3
E	NC	FC4_TP0	FC4_TN1	FC4_TP2	FC4_TN3
F	GND	FC4_TN0	GND	FC4_TN2	GND
G	FC5_RN0	GND	FC3_RN2	GND	FC3_RN0
H	FC5_RP0	FC3_RN3	FC3_RP2	FC3_RN1	FC3_RP0
J	GND	FC3_RP3	GND	FC3_RP1	GND
K	FC5_TN0	GND	FC3_TN1	GND	FC3_TN3
L	FC5_TP0	FC3_TN0	FC3_TP1	FC3_TN2	FC3_TP3
M	GND	FC3_TP0	GND	FC3_TP2	GND
N	FC5_RN1	GND	FC2_RN2	GND	FC2_RN0
O	FC5_RP1	FC2_RN3	FC2_RP2	FC2_RN1	FC2_RP0
P	GND	FC2_RP3	GND	FC2_RP1	GND
R	FC5_TN1	GND	FC2_TN1	GND	FC2_TN3
S	FC5_TP1	FC2_TN0	FC2_TP1	FC2_TN2	FC2_TP3
T	GND	FC2_TP0	GND	FC2_TP2	GND

CHAPTER 3: HARDWARE SETUP

To access some components and perform certain service procedures, you must perform the following procedures first.



Warning: To reduce the risk of personal injury, electric shock, or damage to the equipment, remove the power cord to remove power from the server. The front panel Power On/Standy button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

Replacing Front Network I/O Blades & Switch Boards

A HTCA-6600 system supports a total of six externally accessible LAN I/O blades and/or switch boards, varied depending on ordering configurations (the system supports up to 2x switch boards and up to 5x LAN I/O blades). To replace a new blade/switch board, please follow the steps below.

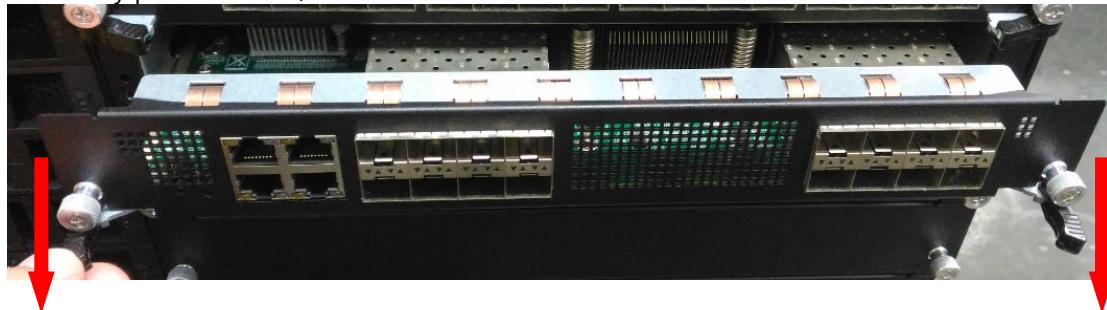
1. Rotate and loosen the two captive screws at both ends. You may use a screwdriver to conduct this task.



2. Pull the two locks frontwards, then extend outwards (in the same direction).



3. Gently pull the board/blade out.



APPENDIX: TERMS AND CONDITIONS

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after service freight charges for goods returned to the user.
3. The buyer will pay for the repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service," RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
 - ▶ Improper or inadequate maintenance by the customer
 - ▶ Unauthorized modification, misuse, or reversed engineering of the product
 - ▶ Operation outside of the environmental specifications for the product.

RMA Service

Requesting an RMA#

1. To obtain an RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.



Note: Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

*Problem Code:

- | | | | |
|------------------------|------------------------------|--------------------|--------------------------|
| 01:D.O.A. | 07: BIOS Problem | 13: SCSI | 19: DIO |
| 02: Second Time R.M.A. | 08: Keyboard Controller Fail | 14: LPT Port | 20: Buzzer |
| 03: CMOS Data Lost | 09: Cache RMA Problem | 15: PS2 | 21: Shut Down |
| 04: FDC Fail | 10: Memory Socket Bad | 16: LAN | 22: Panel Fail |
| 05: HDC Fail | 11: Hang Up Software | 17: COM Port | 23: CRT Fail |
| 06: Bad Slot | 12: Out Look Damage | 18: Watchdog Timer | 24: Others (Pls specify) |

Request Party

Confirmed By Supplier

Authorized Signature / Date

Authorized Signature / Date