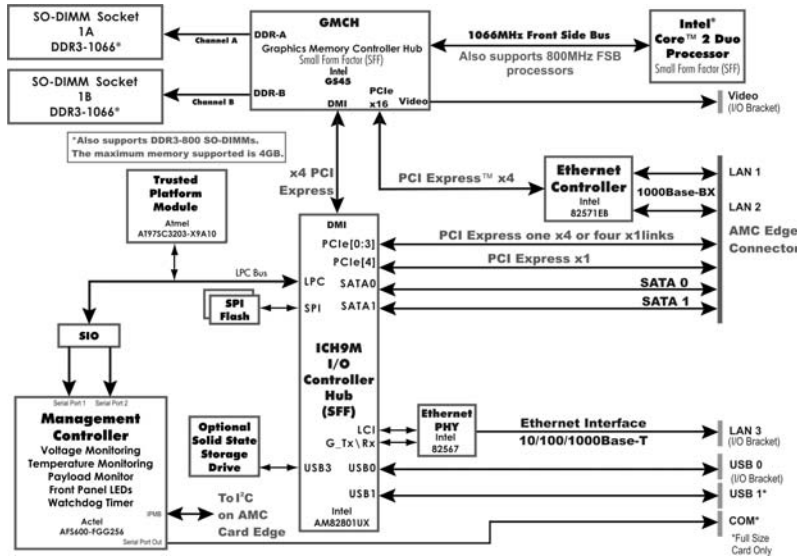


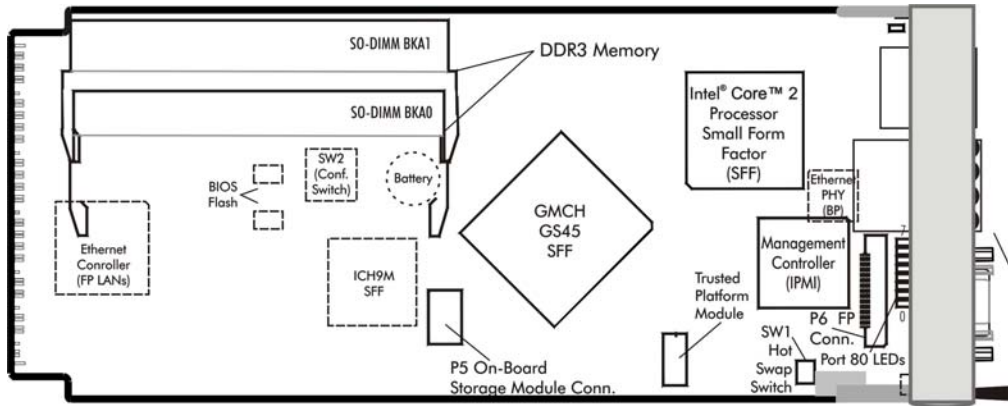


Technical Information – Jumpers, Connectors and Memory MCP6792 (6792) AMC Processor Card

Block Diagram



Layout Diagram – 6792



Notes:

- Single-Width, Full-size (28.95mm) card version shown
- Also available in Single-Width, Mid-size (18.96mm) version
- Card dimensions compliant with PICMG AMC.0, R2.0 Specification
- Front panel connectors are populated based on card version



*Available on full-size front panel versions



MCP6792 (6792-xxx) Jumpers

There are no jumpers on the MCP6792 AMC processor card.

MCP6792 (6792-xxx) Connectors

- P1 - Video Interface Connector**
 Micro-D DB15 connector, Molex 83612-9020

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	Red	6	Gnd	11	NC
2	Green	7	Gnd	12	VGASDA
3	Blue	8	Gnd	13	HSYNC
4	NC	9	+5	14	VSYNC
5	Gnd	10	Gnd	15	VGASCL

- P2 - RS-232 COMM Connector (Full Size Front Panel Version)**
 Micro-D DB9 connector, Molex 83612-9020

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	Carrier Detect	6	Data Set Ready-I
2	Receive Data-I	7	Request to Send-O
3	Transmit Data-O	8	Clear to Send-I
4	Data Terminal Ready-O	9	Ring Indicator-I
5	Signal Gnd		

- P4 - Dual Stacked Universal Serial Bus (USB) Connector (Full Size Front Panel Version)**
 Dual 4-position connectors within a common right-angle housing, Molex #67298-4091

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	VCC-USB0	5	VCC-USB1
2	USB0-	6	USB1-
3	USB0+	7	USB1+
4	Gnd-USB0	8	Gnd-USB1

- P4 - Universal Serial Bus (USB) Connector (Mid Size Front Panel Version)**
 4-position connector in a right-angle housing, Molex #67643-0910

<u>Pin</u>	<u>Signal</u>
1	VCC-USB0
2	USB0-
3	USB0+
4	Gnd-USB0

- P5 - Universal Serial Bus (USB) Flash Drive Connector**
 10-position vertical header, 2mm, unshrouded, Samtec #TW-05-02-L-D-180-SM

<u>Pin</u>	<u>Signal</u>	<u>Pin</u>	<u>Signal</u>
1	VCC-USB2	6	NC
2	NC	7	Gnd-USB2
3	USB2-	8	NC
4	NC	9	Key
5	USB2+	10	Flash LED



MCP6792 (6792-xxx) Connectors (continued)

AMC1 - AMC Edge Card Connector

170 position card edge connector, Refer to PICMG AMC.0, R2.0 Specification

<u>Position</u>	<u>Signal</u>	<u>Position</u>	<u>Signal</u>	
1	Gnd	170	Gnd	
2	+12V	169	TDI*	* Pins jumpered together
3	PS1#	168	TDO*	
4	MP PWR	167	TRST#	
5	GA0	166	TMS	
6	RSRVD6	165	TCK	
7	Gnd	164	Gnd	
8	RSRVD8	163	TX20+	
9	+12V	162	TX20-	
10	Gnd	161	Gnd	
11	TX0+ (Ethernet LAN1)	160	RX20+	
12	TX0- (Ethernet LAN1)	159	RX20-	
13	Gnd	158	Gnd	
14	RX0+ (Ethernet LAN1)	157	TX19+	
15	RX0- (Ethernet LAN1)	156	TX19-	
16	Gnd	155	Gnd	
17	GA1	154	RX19+	
18	+12V	153	RX19-	
19	Gnd	152	Gnd	
20	TX1+ (Ethernet LAN2)	151	TX18+	
21	TX1- (Ethernet LAN2)	150	TX18-	
22	Gnd	149	Gnd	
23	RX1+ (Ethernet LAN2)	148	RX18+	
24	RX1- (Ethernet LAN2)	147	RX18-	
25	Gnd	146	Gnd	
26	GA2	145	TX17+	
27	+12V	144	TX17-	
28	Gnd	143	Gnd	
29	TX2+ (SATA0)	142	RX17+	
30	TX2- (SATA0)	141	RX17-	
31	Gnd	140	Gnd	
32	RX2+ (SATA0)	139	TCLKD+	
33	RX2- (SATA0)	138	TCLKD-	
34	Gnd	137	Gnd	
35	TX3+ (SATA1)	136	TCLKC+	
36	TX3- (SATA1)	135	TCLKC-	
37	Gnd	134	Gnd	
38	RX3+ (SATA1)	133	TX15+	
39	RX3- (SATA1)	132	TX15-	
40	Gnd	131	Gnd	
41	ENABLE# (AMC Enable)	130	RX15+	
42	+12V	129	RX15-	
43	Gnd	128	Gnd	
44	TX4+ (PCI Express)	127	TX14+	
45	TX4- (PCI Express)	126	TX14-	
46	Gnd	125	Gnd	
47	RX4+ (PCI Express)	124	RX14+	
48	RX4- (PCI Express)	123	RX14-	



MCP6792 (6792-xxx) Connectors (continued)

AMC1 - AMC Edge Card Connector (continued)
 170 position card edge connector, Refer to PICMG AMC.0, R2.0 Specification

49	Gnd	122	Gnd
50	TX5+ (PCI Express)	121	TX13+
51	TX5- (PCI Express)	120	<i>TX13-</i>
52	Gnd	119	Gnd
53	RX5+ (PCI Express)	118	RX13+
54	TX5- (PCI Express)	117	<i>RX13-</i>
55	Gnd	116	Gnd
56	SCL_L (IPMB-L Clock)	115	TX12+
57	+12V	114	<i>RX12-</i>
58	Gnd	113	Gnd
59	TX6+ (PCI Express)	112	RX12+
60	TX6- (PCI Express)	111	<i>RX12-</i>
61	Gnd	110	Gnd
62	RX6+ (PCI Express)	109	TX11+
63	RX6- (PCI Express)	108	<i>TX11-</i>
64	Gnd	107	Gnd
65	TX7+ (PCI Express)	106	RX11+
66	TX7- (PCI Express)	105	<i>RX11-</i>
67	Gnd	104	Gnd
68	RX7+ (PCI Express)	103	TX10+
69	RX7- (PCI Express)	102	<i>TX10-</i>
70	Gnd	101	Gnd
71	SDA_L (IMPB-L Data)	100	RX10+
72	+12V	99	<i>RX10-</i>
73	Gnd	98	Gnd
74	TCLKA+	97	TX9+
75	<i>TCLKA-</i>	96	<i>TX9-</i>
76	Gnd	95	Gnd
77	TCLKB+	94	RX9+
78	<i>TCLKB-</i>	93	RX9-
79	Gnd	92	Gnd
80	FCLKA+ (PCIe Clock)	91	TX8+ (PCI Express)
81	FCLKA- (PCIe Clock)	90	TX8- (PCI Express)
82	Gnd	89	Gnd
83	PS0#	88	RX8+ (PCI Express)
84	+12V	87	RX8- (PCI Express)
85	Gnd	86	Gnd

Italics indicates no connects on the AMC6792 card.



MCP6792 (6792-xxx) PCI Express Configuration Switch

SW2 - PCI Express Backplane Link Configuration Switch & Clear CMOS Reset
 6-position dip switch, C&K #TDA06H0SB1

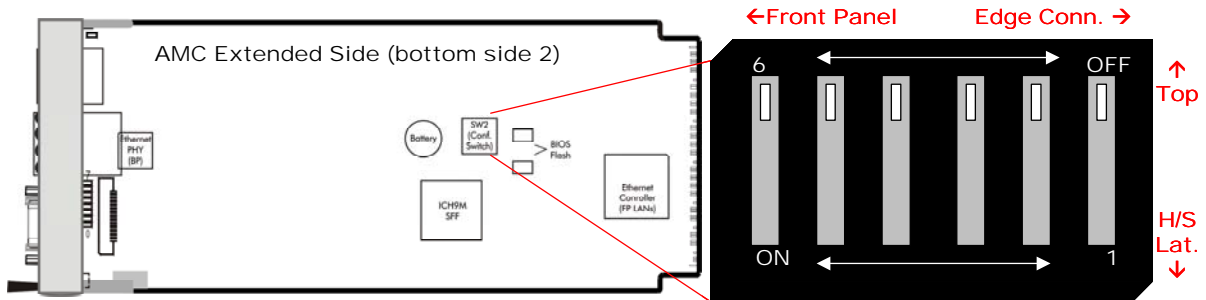
Card Configuration

Normal Operation (default)
 Clear CMOS*
 PCIe Link Org. = 4, x1 PCI Express Ports
 PCIe Link Org. = 1, x2 & 2, x1 PCIe Ports
 Reserved
 PCIe Link Org. = 1, x4 PCI Express Port
 Fabric Clock Select – Normal
 Fabric Clock Select – Force AMC CLK Src.
 Reserved
 Reserved

SW2 Settings

SW2-1 = OFF, *default*
 SW2-1 = ON
 SW2-2 = OFF & SW2-3 = OFF, *default*
 SW2-2 = ON & SW2-3 = OFF
 SW2-2 = OFF & SW2-3 = ON
 SW2-2 = ON & SW2-3 = ON
 SW2-4 = OFF, *default*
 SW2-4 = On
 SW2-5
 SW2-6

*Toggle SW2-1 on and then off to effect a Clear CMOS operation. There is no need for the card to be under power to Clear CMOS.

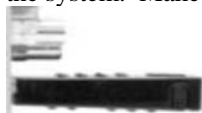


MCP6792 (6792-xxx) Hot Swap Switch

Removing the MCP6792 AMC is controlled by the hot swap IPMI logic in the card's MMC and either a MicroTCA chassis' MCH or an AdvancedTCA's carrier card. The blue hot swap (HS) LED on the card's front panel indicates the specific states of the AMC's hot swap IPMI logic.

When the card's front panel latch is pulled out to position 2 shown in the figure below, SW1 on the card sends a signal to the MMC indicating that the card latch has been opened. The MCC then sends out an IPMI Hot Swap event message on the IPMB_L bus. In a MicroTCA application the system's MCH reads this message and clears the deactivation-locked bit and sends a message back to the MMC along the IPMB-L bus to blink the card's HS LED. Several other commands and messages are generated in a specific sequence to prepare the system for the safe removal of the AMC.

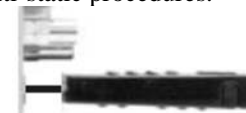
Once the hot swap logic execution is completed, the blue LED will be turned to the full on condition. This is your indication to pull the card's front panel latch to position 3 in order to remove the MCP6792 from the system. Make sure to follow the recommended card handling and proper anti-static procedures.



Position 1 -
AMC Locked



Position 2 -
Requesting HS Removal



Position 3 -
Full extension for AMC
Removal



MCP6792 (6792-xxx) LEDs

Ethernet LEDs and Connector

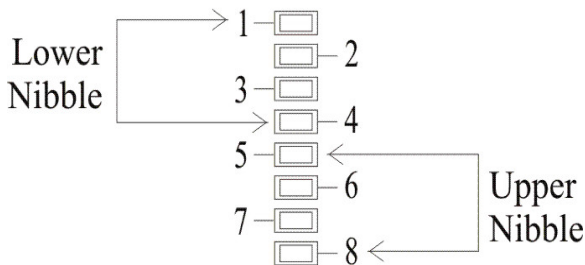
The front panel Ethernet interface has two LEDs for status indication and an RJ-45 network connector.

<u>LED/Connector</u>	<u>Description</u>
Activity LED	Green LED which indicates network activity. This is the upper LED on the LAN connector (i.e., toward the P4 USB0 port).
Off	Indicates there is no current network transmit or receive activity.
On (flashing)	Indicates network transmit or receive activity.
Speed LED	Green LED which identifies the connection speed. This is the lower LED on the LAN connector (i.e., toward the P1 video port).
Off	Indicates a valid link at 1000-Mb/s.
Green	Indicates a valid link at 100-Mb/s.
RJ-45 Network Connector	The RJ-45 network connector requires a category 5 (CAT5) unshielded twisted-pair (UTP) 2-pair cable for a 100-Mb/s network connection or a category 3 (CAT3) or higher UTP 2-pair cable for a 10-Mb/s network connection. A category 5e (CAT5e) or higher UTP 2-pair cable is recommended for a 1000-Mb/s (Gigabit) network connection

Post Code, Diagnostic and Operating Status LEDs

As the POST (Power On Self Test) routines are performed during boot-up, test codes are displayed on Port 80 POST code LEDs 0 through 7, which are located directly behind the card's front panel and are numbered from bottom (0) to top (7). These POST codes may be helpful as a diagnostic tool. The chart below and the specific error codes listed in *Appendix A - BIOS Messages of the Trenton MCP6792 Technical Reference*, can be used to interpret the LEDs into hexadecimal format.

MCP6792 Post Code LEDs





MCP6792 (6792-xxx) LEDs (continued)

Front Panel Diagnostic LEDs (*Full-size Front Panel Versions*)

The card's diagnostic LEDs are numbered 1 through 4 as shown on the card's layout diagram on page 1-4 of this manual. These LEDs provide multiplexed status information. During the card's boot-up process or POST a sliding LED pattern is displayed on the full-size front panel's diagnostic LEDs. If a port80 POSTcode remains constant for a period greater than four seconds the port 80 code will be displayed on the diagnostic LEDs. First the LEDs will be turned off for one second, and then the upper nibble of the port 80 code will be displayed for 0.5 seconds followed by the lower nibble for 0.5 seconds at which point the sequence will recycle with all LEDs off for one sec. If there were an actual POST-code error these LEDs would continually present the error code. There are some non-error port 80 codes that may be valid for greater than four seconds. Examples on the non-error port 80 codes are memory test and SATA device timeout. If a postcode is valid for greater than four seconds and then POST continues and the LEDs will return to the sliding pattern. Once POST has successfully completed, diagnostic LEDs 1 through 4 will turn off. The diagnostic LEDs are then reconfigured to present the following card operating status indications:

<u>Diagnostic LED</u>	<u>LED Status</u>	<u>Description</u>
LED1	On/Flashing	AMC Ethernet Port 0 Activity
LED2	On/Flashing	AMC Ethernet Port 1 Activity
LED3	On/Flashing	AMC SATA Activity (Port 0 or Port1)
LED4	On/Flashing	LED4 On/Flashing = On-board Solid-state Disk Drive (SDD) Activity

Front Panel Operating Status LEDs (*All Front Panel Versions*)

The backplane LAN LED (LED11), which is located at the center bottom of the SHB, indicates the status of communication between the SHB and the backplane, as shown below:

<u>Operating Status LED</u>	<u>LED State</u>	<u>Description</u>
PSON (LED10)	Green - On	Indicates the system power supply has provided all of the correct voltage levels to the card.
PSON (LED10)	Green - Off	Indicates the system power supply has not provided all of the correct voltage levels to the card.
HS (LED9)	Blue - On	On condition of the Hot Swap LED is initiated by pulling on the card's ejection level this indicates that the card can be safely removed.
HS (LED9)	Blue - Off	Normal operating mode condition for Hot Swap LED.
Out Of Service (LED8)	Red - On	OSS indicates that an IPMI monitored process or event has triggered a failed IPMI condition. Does not necessarily mean a fault on the AMC.
Out Of Service (LED8)	Red - Off	Normal operating mode condition.



MCP6792 Memory Interface

The Double Data Rate (DDR3) memory interface is a dual-channel interface that supports up to 4GB of memory and supports memory transfer rates of 800MHz or 1066MHz depending on the memory modules used. Each of the channels (DDR-A and DDR-B) terminates at a small outline dual in-line memory module (SO-DIMM) socket. The System BIOS automatically detects memory type, size and speed.

The SHB uses industry standard gold finger memory modules, which must be PC3-6400 or PC3-8500 compliant and have the following features:

1. Gold-plated contacts
2. Non-ECC (64-bit) DDR3 memory
3. Unbuffered configuration

The following SO-DIMM sizes are supported:

<u>FSB</u>	<u>DIMM Type</u>	<u>Width</u>	<u>Component Density</u>
1066	PC3-8500	x8, x16	256MB, 512MB, 1GB, 2GB
800	PC3-6400	x8, x16	256MB, 512MB, 1GB, 2GB

Trenton’s MCP6792 supports the Interleaved and Asymmetric modes of memory operation. The mode of memory operation is determined by how the SO-DIMMs are populated. Listed below are descriptions of the Interleaved and Asymmetric memory operations.

Interleaved Mode - This is the mode of operation that enables the highest memory interface speed and bandwidth throughput capability. Often times this mode of operation is referred to as “dual-channel mode”. Interleaved mode occurs when using two SO-DIMM modules on the MCP6792 card with equal memory capacities. The SO-DIMM technology and device width can vary but the installed memory capacity for each channel must be equal. If different speed SO-DIMMs are used in each channel then the slowest SO-DIMM will determine the memory interface speed.

Asymmetric Mode - A memory module can be installed in only one SO-DIMM socket. If only one SO-DIMM module is used, it must be populated in SO-DIMM socket 1A. From a system operational standpoint, asymmetric mode functions as a “single-channel” memory interface; therefore, on the MCP6792 card asymmetric mode occurs when using a single SO-DIMM module.

The MCP6792’s memory interface operates at maximum bandwidth with two SO-DIMMs of the same size installed in SO-DIMM socket 1A and 1B, but the SO-DIMMs may differ in technology (i.e. component density) and/or device width. For example, when using a single PC3-8500 DIMM, the peak memory interface bandwidth is 8.533GB/s. Placing a PC3-8500 DIMM in each memory socket substantially increases the AMC’s theoretical peak memory bandwidth.