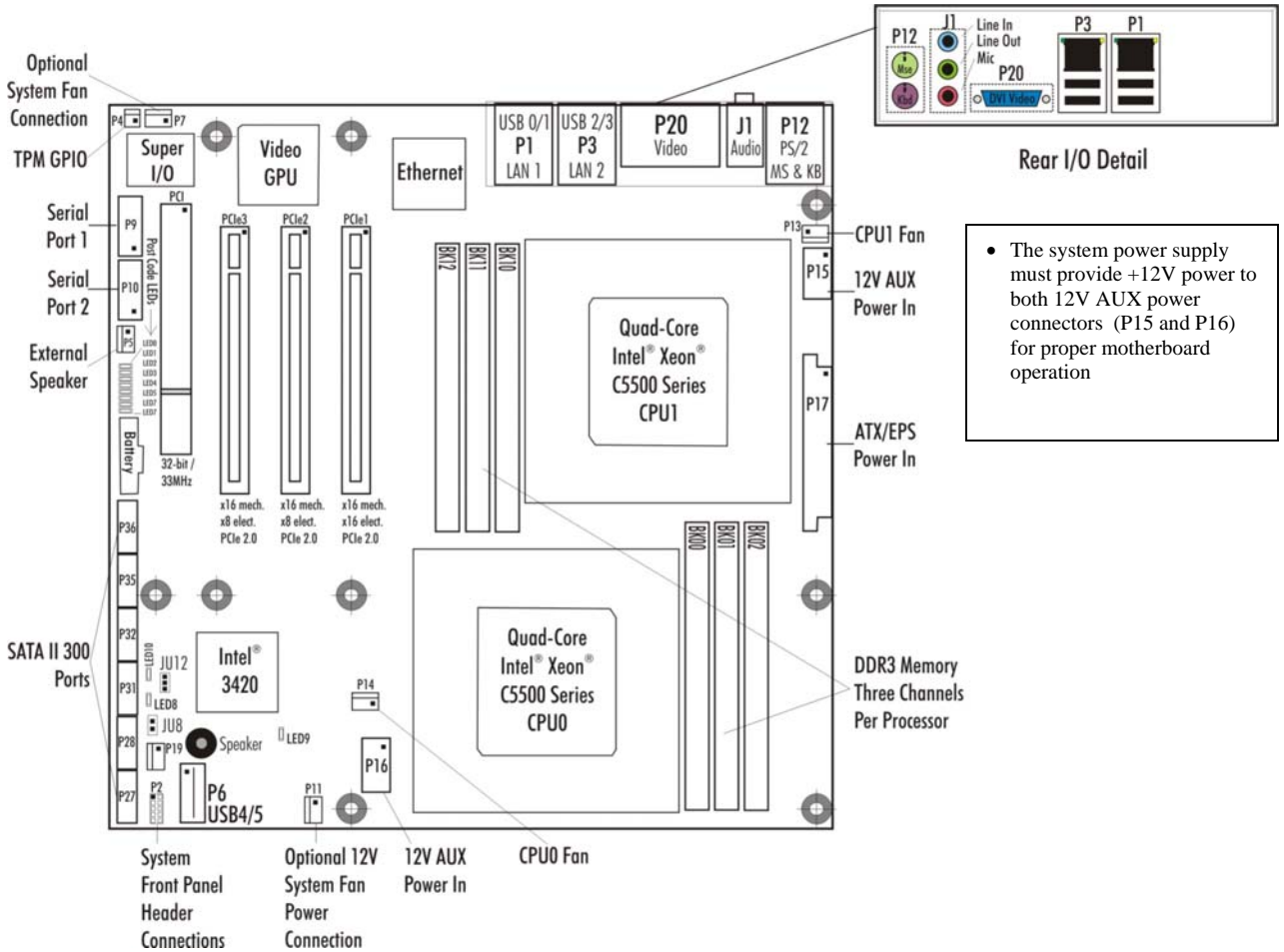




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Layout Diagram





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Jumpers & LEDs

The setup of the configuration jumpers on the motherboard is described below. An asterisk (*) indicates the default value of each jumper.

NOTE: For the three-position jumper, "TOP" is toward the bracket end of the board; "BOTTOM" is toward the Post Code LEDs.

JU8 Password Clear (two position jumper)

Install for one power-up cycle to reset the password to the default (null password).
Remove for normal operation. *

JU12 CMOS Clear (three position jumper)

Install on the BOTTOM to clear.
Install on the TOP to operate. *

NOTE: To clear the CMOS, power down the system and install the jumper on the BOTTOM. Wait for at least two seconds, move the jumper back to the TOP and turn the power on. Clearing CMOS on the JXM7031 will not result in a checksum error on the following boot. If you want to change a BIOS setting, you must press DEL or the F2 key during POST to enter BIOS setup after clearing CMOS.



Jumpers & LEDs (continued)

P1 and P3 Ethernet Connectors & LEDs

The I/O bracket houses the four RJ-45 network connectors for Ethernet LAN1 and LAN2. Each LAN interface connector has two LEDs that indicate activity status and Ethernet connection speed. Listed below are the possible LED conditions and status indications for each LAN connector:

LED/Connector Description

Activity LED	This green LED indicates network activity. This is the LED closest to connector P12 on the LAN connector.
Off	No current network transmit or receive activity
On (flashing)	Indicates network transmit or receive activity.
Speed LED	This green/yellow LED identifies the connection speed. This is the LED farthest from connector P12 on the LAN connector.
Off	Indicates a valid link at 1000-Mb/s
On	Indicates a valid link at 100-Mb/s.

RJ-45 Network Connectors The RJ-45 network connector requires a Connectors 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.

LED0 thru LED7 – POST Code 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. These LED are located on the left side of the motherboard between the battery and the P10 connector for COMM Port 2. The POST Code LEDs and are numbered from top (position 1 = LED0) to bottom (position 8 – LED7). Refer to the board layout diagram for the exact location of the POST code LEDs.

Specific error codes for the Post Code LEDs are listed in Appendix A - BIOS Messages section of the JXM7031 Technical Reference Manual, along with a chart to interpret the LEDs into hexadecimal format. The LEDs are off (00h) after a normal POST indicating that the motherboard's BIOS has passed control over to the operating system loader typically at interrupt INT19h. This chart from Appendix A is used to interpret the LEDs during POST.

Upper Nibble (UN)				
Hex. Value	LED7	LED6	LED5	LED4
0	Off	Off	Off	Off
1	Off	Off	Off	On
2	Off	Off	On	Off
3	Off	Off	On	On
4	Off	On	Off	Off
5	Off	On	Off	On
6	Off	On	On	Off
7	Off	On	On	On
8	On	Off	Off	Off
9	On	Off	Off	On
A	On	Off	On	Off
B	On	Off	On	On
C	On	On	Off	Off
D	On	On	Off	On
E	On	On	On	Off
F	On	On	On	On

Lower Nibble (LN)				
Hex. Value	LED3	LED2	LED1	LED0
0	Off	Off	Off	Off
1	Off	Off	Off	On
2	Off	Off	On	Off
3	Off	Off	On	On
4	Off	On	Off	Off
5	Off	On	Off	On
6	Off	On	On	Off
7	Off	On	On	On
8	On	Off	Off	Off
9	On	Off	Off	On
A	On	Off	On	Off
B	On	Off	On	On
C	On	On	Off	Off
D	On	On	Off	On
E	On	On	On	Off
F	On	On	On	On



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LED8 – Power Good

This is the lower LED located between connector P31 and JU12. When this green LED is on it indicates that each system power level is at the proper operating voltage required by the motherboard. Specifically, this LED indicates that all on-board DC_DC regulators are valid as well as the levels of the incoming 3.3V and 5V rails. If the Power Good LED is not "ON", then there are Voltage Test Points available on the motherboard that may be metered to determine which voltage is not up to the correct power level.

LED9 – Thermal Trip

The "Thermal Trip" LED will turn on when a processor's temperature monitoring sensor detects that the CPU has reached its maximum safe operating temperature. This indicates that the processor's Thermal Control Circuit has been activated, if enabled.

LED10 – 5V Standby

LED10 is the upper LED located between the SATA P31 connector and jumper JU12. This green LED represents what amounts to a caution indicator. When this LED is on the 5V stand by voltage is present on the motherboard. Option cards and any other motherboard components must not be removed or installed when the LED 10 is illuminated.

CAUTION: Never remove or install option cards or any other system components while LED10 is illuminated.



Connectors

NOTE:

A connectors square solder pad located on the bottom side of the PCB indicates pin 1.

P1, P3 - 10/100/1000Base-T Ethernet and Dual USB Combo Connectors - LAN1 + USB0/USB1, LAN2 + USB2/USB3

RJ-45/Dual USB combo connector,
 Pulse #JW0-0006NL

Each individual RJ-45 connector is defined as follows:

PIN	SIGNAL	PIN	SIGNAL
1	TRD1+	5	TRD3-
2	TRD1-	6	TRD2-
3	TRD2+	7	TRD4+
4	TRD3+	8	TRD4-

Each individual USB connector is defined as follows:

PIN	SIGNAL	PIN	SIGNAL
1	+5V – USB#	3	USB#+
2	USB#-	4	GND – USB#

Notes:

- 1 – P1 = LAN1 + USB0/USB1, P3 = LAN2 + USB2/USB3,
- 2 – LAN ports support standard CAT5 Ethernet cables
- 3 – USB ports support standard USB cables and devices
- 4 - # indicates USB port number

P2 – Front Panel Header Connector

10 pin dual row header, Molex #87914-1001

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	2	+3.3V
3	LED HDD Activity	4	Power Good LED
5	Gnd	6	PWRBTN
7	System RESET	8	Gnd
9	Gnd	10	NC

P4 - TPM GPIO Signal Connector

2 pin single row header, Amp #640456-2

PIN	SIGNAL	PIN	SIGNAL
1	Gnd	2	TPM_GPIO6

Note:

General Purpose I/O (GPIO) signal to pin 6 of the TPM 1.2 (U32) located on the bottom side of the motherboard.

P12 – Combo PS/2 Mouse & Keyboard Connector

KYCON Stacked Mini-Din, KMDGX-6SG/P-S4N1
 PS/2 Mouse connector (green):

PIN	SIGNAL	PIN	SIGNAL
B1	Mouse Data	B4	5V AUX
B2	NC	B5	Mouse CLK
B3	Gnd	B6	NC

PS/2 Keyboard connector (purple):

PIN	SIGNAL	PIN	SIGNAL
A1	Kbd Data	A4	5V AUX
A2	NC	A5	Kbd CLK
A3	Gnd	A6	NC

Notes:

- 1 – PS/2 keyboard connector supports standard PS/2 keyboards
- 2 – PS/2 mouse connector supports standard PS/2 pointing devices

P15, P16 – +12V AUX Input Power Connector

8 pin vertical connector, Molex #39-29-3086

PIN	SIGNAL	PIN	SIGNAL
1	Gnd	5	+12V Aux Input
2	Gnd	6	+12V Aux Input
3	Gnd	7	+12V Aux Input
4	Gnd	8	+12V Aux Input

Caution: Both P15 and P16 must be connected to the system power supply to ensure proper board operation.

P27, P28, P31, P32, P35, P36 - SATA PORT II 300 Ports

7 pin locking vertical connector, Molex #67800-8005

PIN	SIGNAL	PIN	SIGNAL
1	Gnd	5	RX-
2	TX+	6	RX+
3	TX-	7	Gnd
4	Gnd		

Notes:

- 1 – P27 = SATA0 interface, P28 = SATA1 interface, P31 = SATA2 interface, P32 = SATA3 interface, P35 = SATA4 interface, P36 = SATA5 interface,
- 2 – SATA connectors support standard SATA II interface cables



Connectors (continued)

P5 – External Speaker Connector

2 pin single row header, Amp #640456-4

PIN	SIGNAL	PIN	SIGNAL
1	Speaker Out	2	NC
3	Gnd	4	+5V

P7, P11, P13, P14 – System Fan & CPU Fan Power Connectors

4 pin single row header, FOXCONN #HF2704E-M1

PIN	SIGNAL	
1	Speed Control Line	P14 = CPU0 fan connector
2	+12V	P13 = CPU1 fan connector
3	Fan Tach	P7, P11 = optional system fan connectors
4	Fan PWM Sys	

P9, P10 – RS-232 Serial Port

10 pin vertical connector, Amp #1761602-3

PIN	SIGNAL	PIN	SIGNAL
1	Carrier Detect	6	Clear To Send
2	Data Set Ready	7	Data Terminal Ready
3	Receive Data	8	Ring Indicator
4	Request To Send	9	Signal Gnd
5	Transmit Data	10	NC

P19 - SMBus Connector

3 pin single row header, Amp #640456-3

PIN	SIGNAL	PIN	SIGNAL
1	Gnd	2	SMBCLK
3	SMBDAT		

J1 – Audio Connector

3 position audio, FOXCONN #JA33331-H119-4F

Socket Color	SIGNAL
Light Blue	Line In
Lime	Line Out
Pink	Mic

P17 – ATX/EPS Power Connector

24 pin vertical dual row, Molex #44206-0007

PIN	SIGNAL	PIN	SIGNAL
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Gnd	15	Gnd
4	+5V	16	PSON
5	Gnd	17	Gnd
6	+5V	18	Gnd
7	Gnd	19	Gnd
8	PWRGD	20	-5V
9	+5V Stand By	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Gnd

P20 – DVI Video Connector

FOXCON #QH11121-CP1, Right Angle DVI-I Video connector (Analog & Digital Host):

PIN	SIGNAL	PIN	SIGNAL
1	DVI_TX2N	13	NC
2	DVI_TX2P	14	VCC5_DVI
3	Gnd	15	Gnd
4	NC	16	DVI_HPDET
5	NC	17	DVI_TX0N
6	SCLK	18	DVI_TX0P
7	SDATA	19	Gnd
8	VSYNC	20	NC
9	DVI_TX1N	21	NC
10	DVI_TX1P	22	Gnd
11	Gnd	23	DVI-TXCP
12	NC	24	DVI_TXCN
C1	Red	C4	HSSYNC
C2	Green	C5A	GND
C3	Blue	C5B	Gnd

Note:

1 – Video connector supports standard DVI video cables and adapters.



Memory

Each processor on the motherboard supports three DDR3-1333 memory interfaces. There are six active Mini-DIMM sockets on the board and each one can support up to 32GB DIMMs for a total possible DDR3 system memory capacity of 192GB. However, currently available DDR3 Mini-DIMM memory capacities of 2GB, 4GB and 8GB are more common in today’s market; thereby, making the maximum practical limit of system memory supported 48GB. The peak memory interface bandwidth per channel is 32/GB/s when using PC3-10600 (i.e. DDR3-1333) Mini-DIMMs. Each of the direct CPU memory channel (BK##) terminates with a single in-line Mini-DIMM memory module socket. The System BIOS automatically detects memory type, size and speed.

Trenton recommends ECC registered DDR3 memory modules for use on the JXM7031 and these ECC registered (72-bit) DDR3 Mini-DIMMs must be PC3-10600 or PC3-8500 compliant. Unbuffered ECC DDR3 Mini-DIMMs are also supported on the JXM7031 motherboard, but you cannot mix the two different memory types on the same board.

The motherboard uses industry standard gold finger Mini-DIMM memory modules, which must be PC3-10600 or PC3-8500 compliant and have the following features:

- Gold-plated contacts
- ECC registered (72-bit) DDR3 memory
- 244-pin

The following Mini-DIMM sizes are supported:

MT/s	Mini-DIMM Type	Rank	Component Density
1333	PC3-10600	Single, Dual, Quad	1GB, 2GB, 4GB, 8GB, 12GB
1066	PC3-8500	Single, Dual, Quad	1GB, 2GB, 4GB, 8GB, 12GB

NOTE 1: To maximize memory interface speed, populate each memory channel with DDR3 Mini-DIMMs having the same interface speed. The motherboard will support Mini-DIMMs with different speeds, but the memory channel interface will operate speed of the slowest Mini-DIMM.

NOTE 2: Low voltage (DDR3L) Mini-DIMMs are not supported.

NOTE 3: The motherboard supports the following memory module memory latency timings:

- 6-6-6 for 800MHz DDR3 Mini-DIMMs
- 7-7-7 and 8-8-8 for 1066MHz DDR3 Mini-DIMMs
- 9-9-9 for 1333MHz DDR3 Mini-DIMMs

NOTE 4: Populating the memory sockets with Mini-DIMMs having different speeds is supported on the motherboard; however, the overall memory interface speed will run at the speed of the slowest Mini-DIMM.

NOTE 5: Populate the memory sockets starting with the Mini-DIMM socket closest to the CPU and work your way toward the edges of the motherboard as illustrated in the chart below:

Population order	CPU1	CPU2
1	BK00	BK10
2	BK01	BK11
3	BK02	BK12

[JXM7031 Product Detail.](#)