MX57QM

Intel® QM57 Mini ITX featuring latest two chips design, supports Intel® Core™ i7, i5, i3 Arrandale Mobile processors, DDR3-800/1066 SODIMM up to 8GB, 18/24-bit LVDS, HDMI, DVI-D, Dual Gigabit Ethernet, 6 COM ports with Power Selection, 5 SATA, PCI Express x16, one min-PCIE.

User's Manual   Ver. 1.1

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(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

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 INSTATLLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by BCM, or which have been to misuse, abuse, accident or improper installation. BCM assumes no liability under the terms of this warranty as a consequence of such events.
Because of BCM high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of BCM products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, BCM products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.

3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.

4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Manual Objectives

This manual describes in detail the BCM MX57QM Mini ITX motherboard.

We strongly recommend that you study this manual carefully before attempting to interface with MX57QM or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Always ground yourself to remove any static charge before touching the motherboard. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Document Amendment History

Revision	Date	Comment
1.0	2010-12-30	First Release
1.1	2011-01-17	Update Table 40: BL1 Diagram

Chapter 1

This chapter describes the motherboard features and the new technologies it supports.

Product Introduction

Block Diagram

Arrandale Processors

PCIEx16 slot

DDR3 800/1066 MT/s — DDR3 SO-DIMM

DDR3 800/1066 MT/s — DDR3 SO-DIMM

Mini-PCIe SSD
or
5th SATA

FDI

DMI

VGA

18/24 bit LVDS

6 x SATAs — 4 x SATAs

LVDS

DVI

Level Shift

SATA to PATA — Compact Flash

HDMI

Level Shift

8 x USB2.0

LAN1

GbE

SPI — SPI BIOS

LAN2

GbE Controller

PCIEx1

LPC

Mini-PCIe

PCIEx1

H/W Monitor

Super I/O

COM1_RS-232/422/485

COM2_RS-232

COM3_RS-232

WDT

COM4_RS-232

COM5_RS-232

COM6_RS-232

IrDA

7.1-CH Audio Out

2W Amp

HD Codec

16-bits DIO 8-In & 8-Out

Table 1 MX57QM Specification

MX57QM Specifications	
System	
CPU	Socket 989 supports Intel® Mobile Core™ i7, i5, i3, Arrandale Processors
BIOS	AMI® 32Mb SPI BIOS
System Chipset	Intel® QM57
Memory	One double stack SO-DIMM for dual channel DDR3 800/1066 supported, non-ECC, up to 8GB
Expansion Slots	1 x Mini PCI Express 1 x PCI Express x16 slot 1 x Compact Flash Socket
TPM	Integrated Trusted Platform Module (TPM) 1.2
TXT	Intel® Trusted Execution Technology (Intel® TXT) supported
Display	
Chipset	Intel® Integrated HD Graphic Engine Support DVMT 5.0
Resolution	2048 x 1536 @ 75 MHz
Dual Display	VGA, HDMI, DVI, LVDS
Audio	
Audio Codec	Realtek® ALC888, 7.1 Channel HD Audio
Audio Interface	Line-out, Mic-in, Line-in, 1 x SPDIF
Ethernet	
LAN1	Intel® 82577LM PHY Gigabit LAN Controller
LAN2	Intel® 82574L PCIe Gigabit LAN Controller
Onboard I/O Headers	
SATA	5 x Standard SATA
USB	2 x USB supports 4 USB Ports
COM	5x RS-232 (with Voltage Selection)
SPDIF	1 x SPDIF
Front Audio	1 x Front Audio
Amplifier	1 x Amplifier (Left/Right)
Front Panel	1 x Front Panel
GPIO	1 x 16-bits GPIO
LVDS	1 x 18/24bit Dual Channel LVDS
Inverter	1 x Inverter
Rear I/O Connectors	
MIO	PS/2 2 x PS/2 Connector (Keyboard/Mouse)
COM	RS-232/422/485 1 x COM Port (with Voltage Selection)
VGA	1 x DB 15
DVI	1 x DVI-D
HDMI	1 x HDMI
LAN and USB	2 x Stack up RJ45 and USB supports 4 Ports
Audio	1 x 3 Jacks Audio
Power \ Mechanical \ Environmental	
Power Type	ATX Power
Operating Temp.	0~60°C (32~140°F)
Operating Humidity	5%~90% relative humidity, non-condensing
Form Factor	Mini ITX
Size (L x W)	6.7" (L) x 6.7" (W)
Weight	0.88 lbs

Before you Proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

1.1 Motherboard Overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Refer to the chassis documentation before installing the motherboard.

> Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

Placement Direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

Screw Holes

Place four (4) screws into the holes indicated by circles to secure the motherboard to the chassis.

> Do not over tighten the screws! Doing so can damage the motherboard.
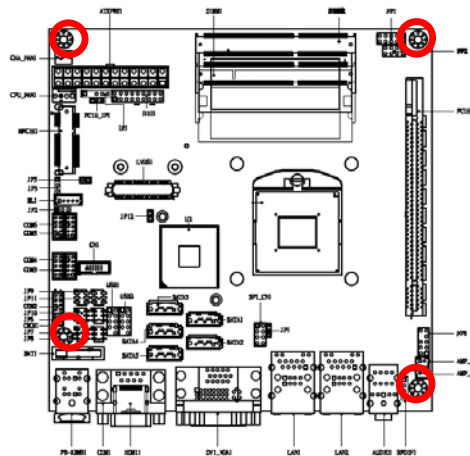
1.2 Motherboard Layout

1.3 Central Processing Unit (CPU)

The motherboard comes with a surface mount designed for the Intel® socket 989 Arrandale processors.

Please note the marked corner (with gold triangle) on the CPU. This mark should match a specific corner on the socket to ensure correct installation.

Gold Mark

- Make sure the power is off before you install the CPU.
- After installing the CPU, connect the CPU fan cable to the **CPU_FAN1** connector to ensure system stability.


- Your boxed Intel® socket 989 Arrandale CPU package should come with installation instructions for the CPU or heatsink.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal.

1.3.1 Installing the CPU

1. Locate the CPU socket on the motherboard.

   Before installing the CPU, make sure that the socket box is facing towards you.
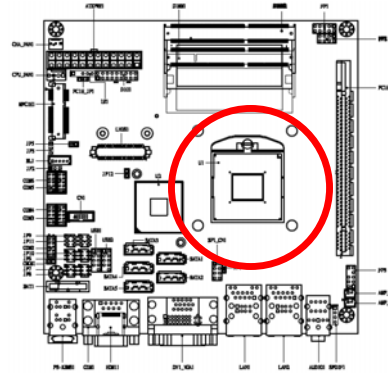
2. The processor socket comes with a screw to secure the processor, please unlock the screw first.

   Unlock
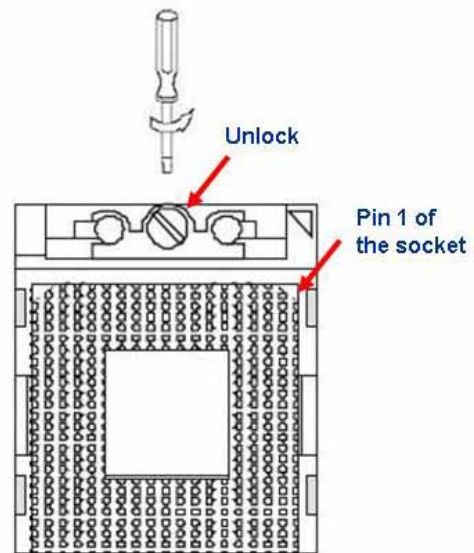
   Pin 1 of the socket

3. Position the CPU above the socket and the gold triangular mark on the CPU must align with pin 1 of the CPU socket.
4. Carefully insert the CPU into the socket until it fits in place 'Gold mark'.
5. Turn the screw to the lock position.

   The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU.

   Lock

   Gold triangular mark
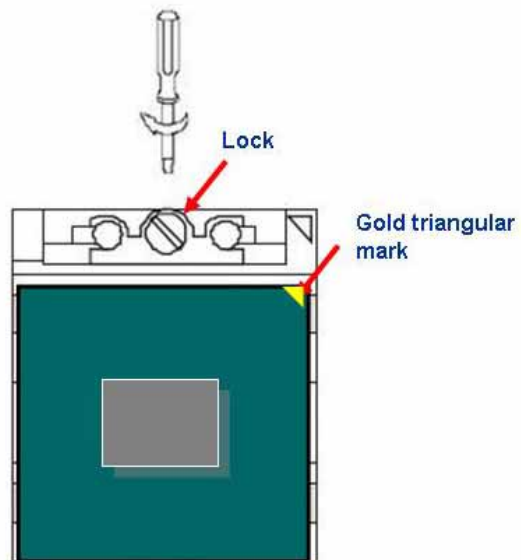
1.3.2 Installing the CPU Heatsink and Fan

1. *Screw down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.*
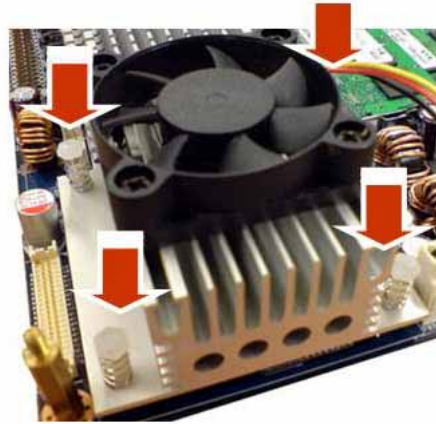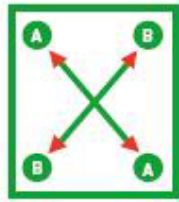
2. Connect the CPU fan cable to the connector on the motherboard labeled **CPU_FAN1**.
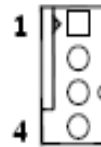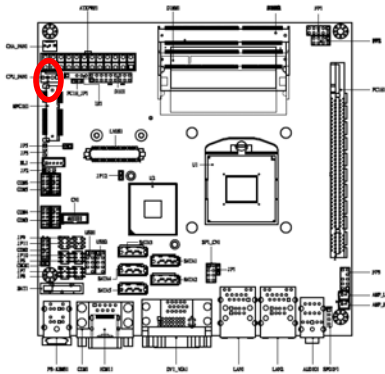
⚠	● Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
	● These are not jumpers! DO NOT place jumper caps on the fan connectors.

1.3.3 Uninstalling the CPU Heatsink and Fan

1. Disconnect the CPU fan cable
from the connector on the
motherboard.
2. Unscrew each fastener
counterclockwise.

3. Loosen two fasteners at a time
in a diagonal sequence to
disengage the heatsink and fan
assembly from the motherboard
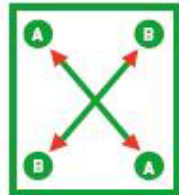
4. Carefully remove the heatsink
and fan assembly from the
motherboard.

Refer to the documentation in the boxed or stand-alone CPU fan
package for detailed information on CPU fan installation.

SO-DIMM Sockets Location

The motherboard comes with two 204-pin Double Data Rate 3 (DDR3) SO-DIMM sockets.
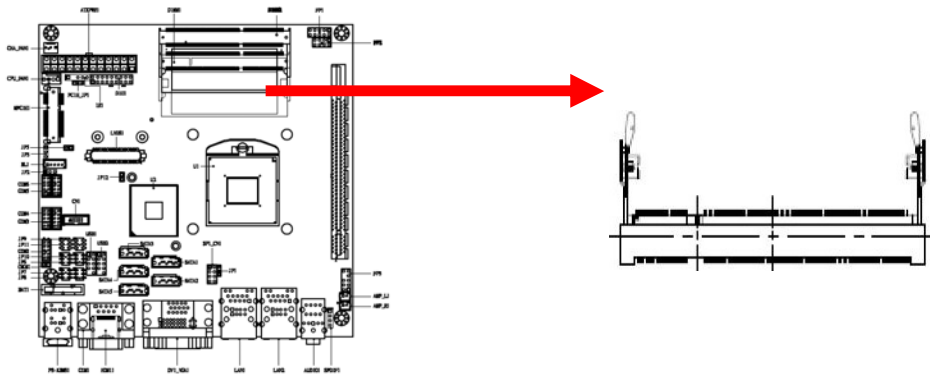
Memory Configurations

You can install 1GB, 2GB and 4GB DDR3 SDRAM SO-DIMMs into the SO-DIMM sockets using the memory configurations in this section.

- Installing DDR3 SO-DIMM other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations.
- Always install SO-DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.
- Due to chipset resource allocation, the system may detect less than 1 GB system memory when you installed one 1 GB DDR3 memory modules.

1.4.1 Installing a DDR3 SO-DIMM

Make sure to unplug the power supply before adding or removing SO-DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. *Locate the SO-DIMM socket on the board.*
2. *Hold two edges of the SO-DIMM module carefully, and keep away of touching its connectors.*
3. *Align the notch key on the module with the rib on the slot.*
4. *Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SO-DIMM module in with extra force as the SO-DIMM module only fit in one direction.*
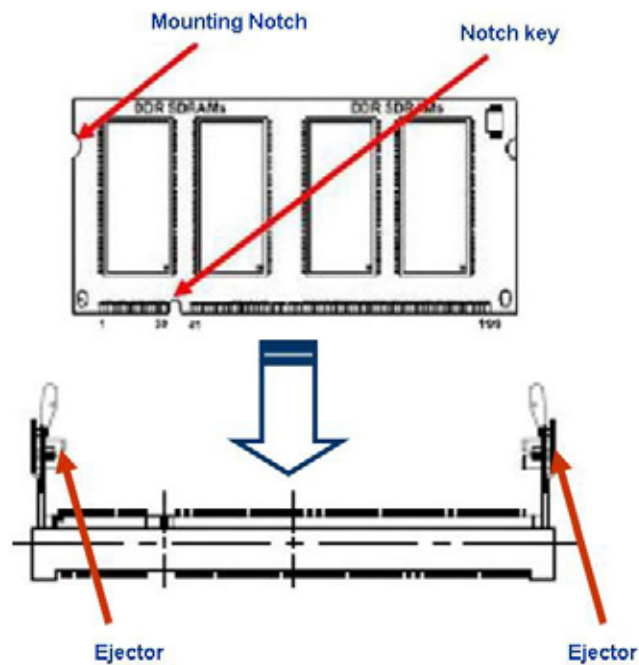
- A DDR3 SO-DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a SO-DIMM into a socket to avoid damaging the SO-DIMM.
- The DDR3 SO-DIMM sockets do not support DDR2 SO-DIMMs. DO NOT install DDR2 SO-DIMMs to the DDR3 SO-DIMM socket.

1.4.2 Removing a DDR3 SO-DIMM

1. *Press the two ejector tabs on the slot outward simultaneously, and then pull out the SO-DIMM module.*
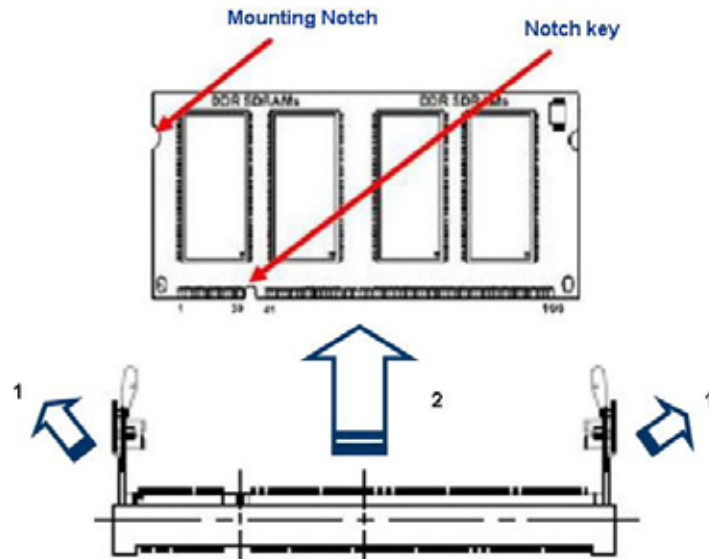
Support the SO-DIMM lightly with your fingers when pressing the ejector tabs. The SO-DIMM might get damaged when it flips out with extra force.

1.5   Expansion slots

In the future, you may need to install expansion cards. The following sub‑sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

Installing an Expansion Card

1. *Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.*
2. *Remove the system unit cover (if your motherboard is already installed in a chassis).*
3. *Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.*
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

mini PCIe x1 slot

CF
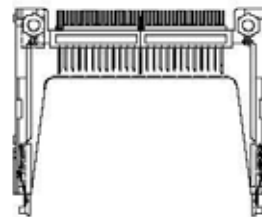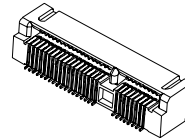
Expansive Interfaces

1.6 Jumpers

The product has several jumpers which must be properly configured to ensure correct operation.
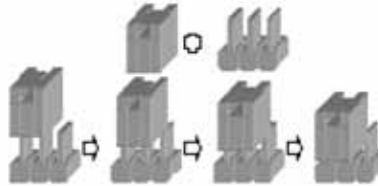
Jumper Connector

For a three-pin jumper, the jumper setting is designated "1-2" when the jumper connects pins 1 and 2. The jumper setting is designated "2-3" when pins 2 and 3 are connected and so on. You will see that one of the lines surrounding a jumper pin is thick, which indicates pin No.1.

To move a jumper from one position to another, use needle-nose pliers or tweezers to pull the pin cap off the pins and move it to the desired position.

1.6.1　Jumper Settings and Pin Definitions

For jumper and connector location, please refer to the diagrams below.

Top View
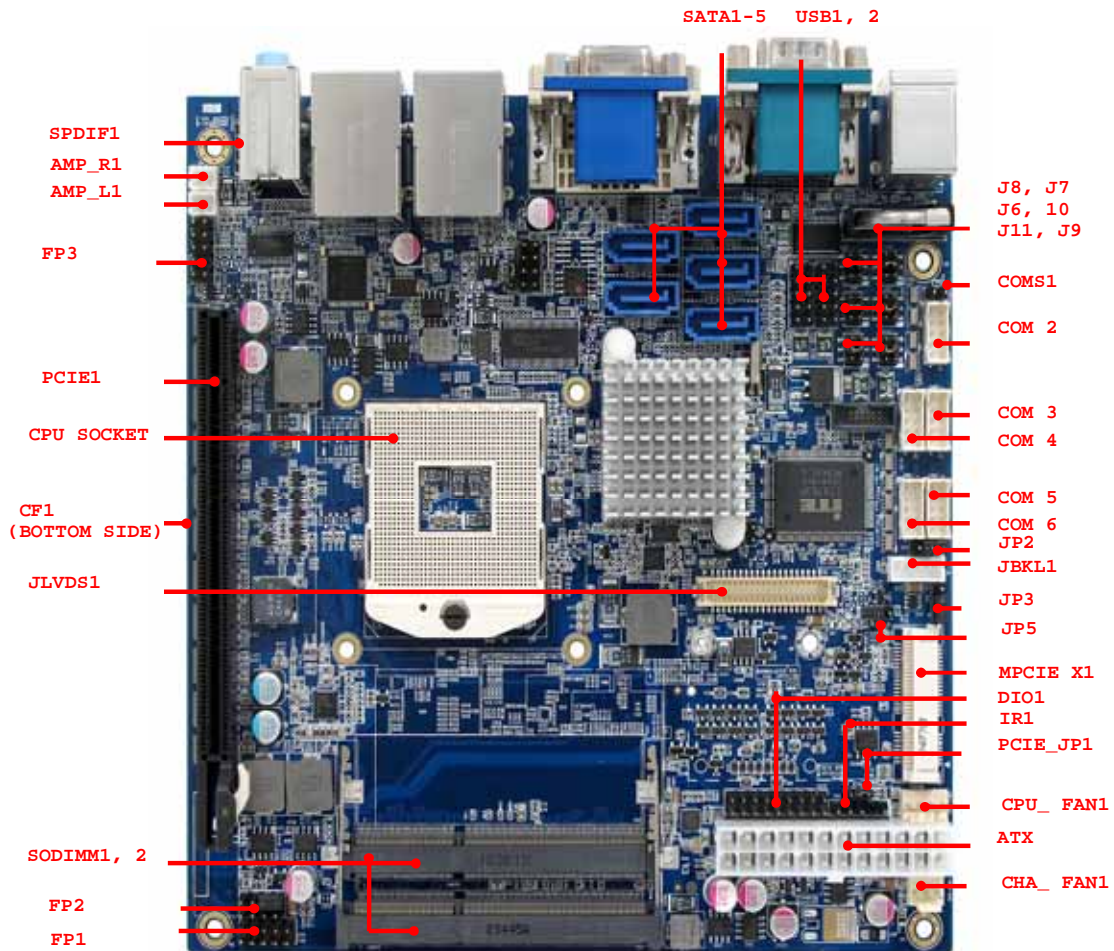
Jumper and Connector Locations – Top View

Bottom View
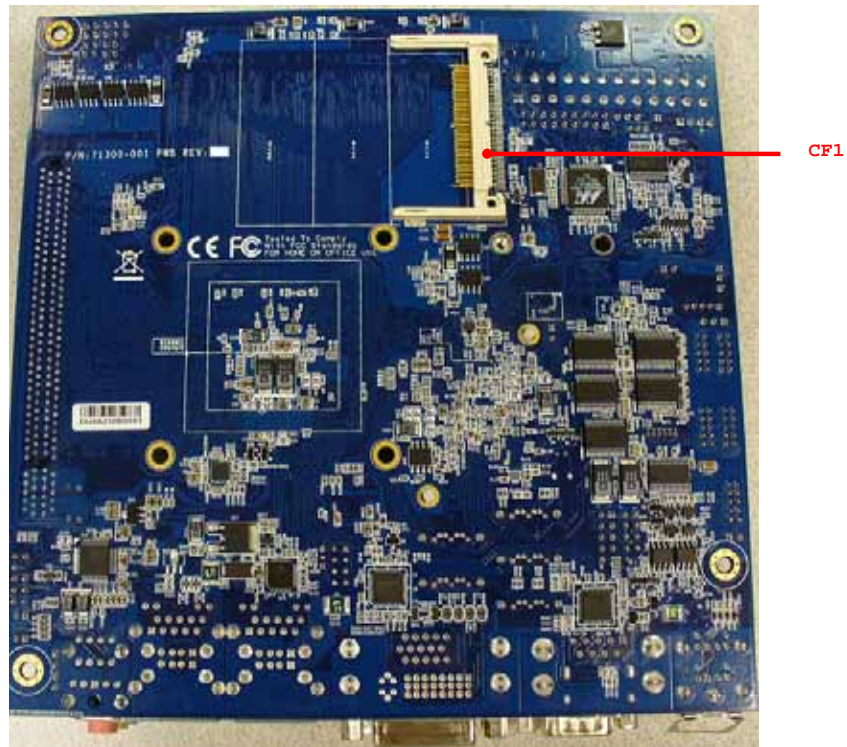
Jumper and Connector Locations – Bottom View

Rear Panel
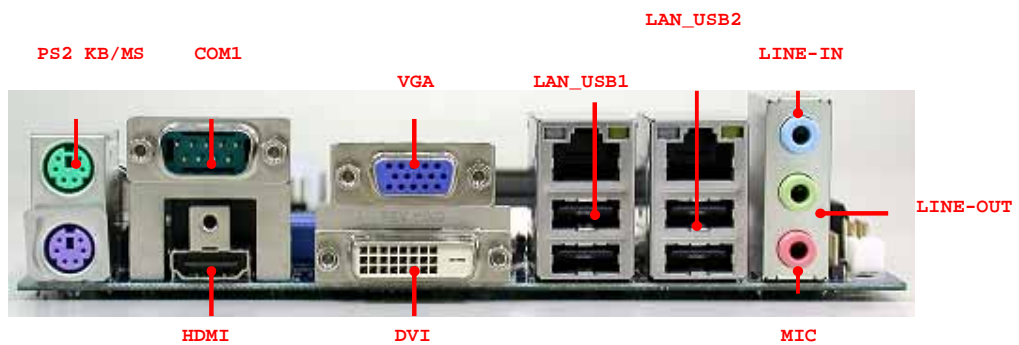
Rear panel IO

1.6.2 Jumper Settings

To ensure correct system configuration, the following section describes how to set the jumpers to enable/disable or change functions. For jumper descriptions, please refer to the table below.

Table 2 Jumper List

Label	Function
PCIE_JP1	*Mini PCIE Rev1.1 & 1.2 Mode Selection*
COMS1	*Clear CMOS Selection*
JP2	*Backlight Enable Selection*
JP3	*Backlight Power Selection*
JP5	*Power Mode Selection*
JP6	*COM3 Signal / Power Selection*
JP7	*COM1 Signal / Power Selection*
JP8	*COM2 Signal / Power Selection*
JP9	*COM6 Signal / Power Selection*
JP10	*COM4 Signal / Power Selection*
JP11	*COM5 Signal / Power Selection*
SPI_CN1	*SPI DEBUG PORT*

Table 3   PCIE_JP1 Mini PCIE Version Selection

Jumper	Status
1-2	MPCIE Rev1.1
2-3	MPCIE Rev1.2

Pitch: 2.0mm
● Jumper default (1-2)

Table 4   COMS1 Clear CMOS Selection
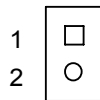
Jumper	Status
Open	Normal Operation
Short	Clear CMOS

Pitch: 2.54mm

Table 5   JP2 Backlight Enable Selection

Jumper	Status
1-2	High Active
2-3	Low Active

Pitch: 2.0mm
● Jumper default (1-2)

Table 6   JP3 Backlight Power Selection

Jumper	Status
1-2	+12V
2-3	+5V

Pitch: 2.0mm

- Jumper default (1-2)

Table 7   JP5 Power mode Selection
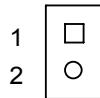
Jumper	Status
Open	ATX Mode
Short	AT Mode

Pitch: 2.54mm

- Default (ATX Mode)

Table 8   JP6 COM3 Signal / Power Selection
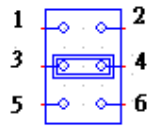
Jumper	Status
1-2	Pin 9 of COM3 = +12V
3-4	Pin 9 of COM3 = RI
5-6	Pin 9 of COM3 = +5V

Pitch: 2.0mm

- Jumper default (3-4)

Table 9   JP7 COM1 Signal / Power Selection
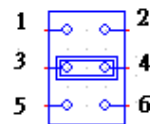
Jumper	Status
1-2	Pin 9 of COM1 = +12V
3-4	Pin 9 of COM1 = RI
5-6	Pin 9 of COM1 = +5V

Pitch: 2.0mm

- Jumper default (3-4)

Table 10   JP8 COM2 Signal / Power Selection
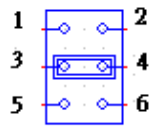
Jumper	Status
1-2	Pin 9 of COM2 = +12V
3-4	Pin 9 of COM2 = RI
5-6	Pin 9 of COM2 = +5V

Pitch: 2.0mm
- Jumper default (3-4)

Table 11   JP9 COM6 Signal / Power Selection
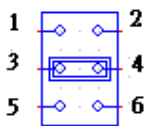
Jumper	Status
1-2	Pin 9 of COM6= +12V
3-4	Pin 9 of COM6 = RI
5-6	Pin 9 of COM6 = +5V

Pitch: 2.0mm
- Jumper default (3-4)

Table 12   JP10 COM4Signal / Power Selection
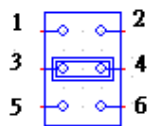
Jumper	Status
1-2	Pin 9 of COM4 = +12V
3-4	Pin 9 of COM4 = RI
5-6	Pin 9 of COM4 = +5V

Pitch: 2.0mm
- Jumper default (3-4)

Table 13   JP11 COM5 Signal / Power Selection
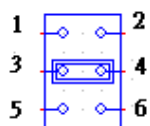
Jumper	Status
1-2	Pin 9 of COM5 = +12V
3-4	Pin 9 of COM5 = RI
5-6	Pin 9 of COM5 = +5V

Pitch: 2.0mm
- Jumper default (3-4)

1.7 Rear Panel Pin Assignments

PS2-KBMS1   COM1   HDMI1   DVI_VGA1   LAN1   LAN2   AUDIO1
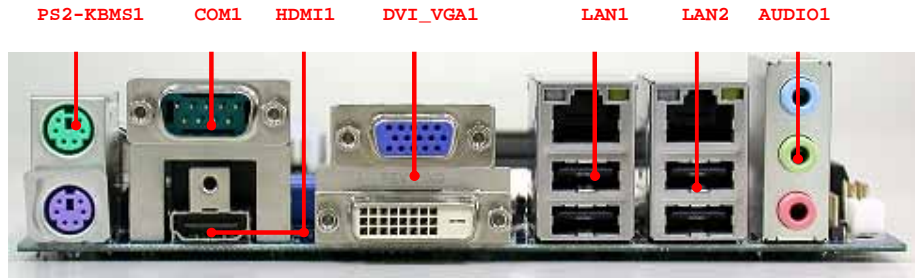
Rear Panel IO

Table 14   Rear Panel Connector List

Label	Function
PS-KBMS1	*PS/2 KB/MS Mini-DIN Connector*
DVI_VGA1	*DVI & VGA Connector*
HDMI1	*HDMI1 connector*
LAN1	*10/100/1000 Ethernet RJ-45 Connector*
LAN2	*10/100/1000 Ethernet RJ-45 Connector*
COM1	*RS-232 / 422 / 485 Port DB-9 Connector*
AUDIO1	*3-Port Audio phone jack*

Table 15   AUDIO1 3 Stack-up Azalia Audio Phone Jack

BLUE

GREEN

PINK

	Signal Name
BLUE	LINE IN
GREEN	LINE OUT
PINK	MIC IN

Table 16 LAN1 RJ-45 + USB Port-0&1 Connector
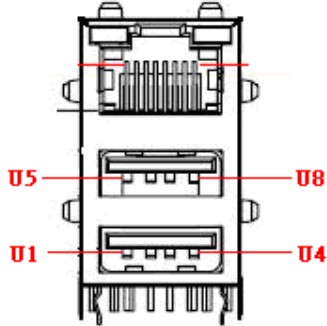
Pin	Signal	Pin	Signal
1	VCC	12	Yellow LED
2	D0+	13	Green LED#
3	D0-	14	Orange LED#
4	D1+	U1	USB_PWR
5	D1-	U2	USB_N0
6	D2+	U3	USB_P0
7	D2-	U4	GND
8	D3+	U5	USB_PWR
9	D3-	U6	USB_N1
10	GND	U7	USB_P1
11	Yellow LED#	U8	GND

USB*2/RJ45*1+TFM+LED(10/100/1000)22P DIP 90°

Table 17 LAN2 RJ-45 + USB Port-2&3Connector
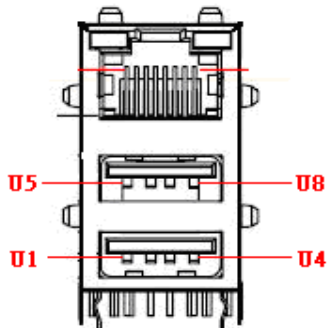
Pin	Signal	Pin	Signal
1	VCC	12	Yellow LED
2	D0+	13	Green LED#
3	D0-	14	Orange LED#
4	D1+	U1	USB_PWR
5	D1-	U2	USB_N2
6	D2+	U3	USB_P2
7	D2-	U4	GND
8	D3+	U5	USB_PWR
9	D3-	U6	USB_N3
10	GND	U7	USB_P3
11	Yellow LED#	U8	GND

USB*2/RJ45*1+TFM+LED(10/100/1000)22P DIP 90°

Table 18   COM1 RS-232 DB-9 Connector
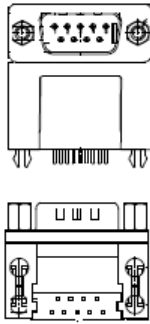
Pin	Signal
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator

D-SUB 9P 90D (M) with hexagonal screws

Table 19   HDMI1 Connector
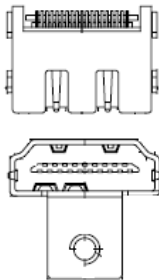
Signal Name	Pin	Pin	Signal Name
TMD_DATA2+	1	2	GND
TMD_DATA2-	3	4	TMD_DATA1+
GND	5	6	TMD_DATA1-
TMD_DATA0+	7	8	GND
TMD_DATA0-	9	10	HDMI_TCLP
GND	11	12	HDMI_TCLN
NC	13	14	NC
DDC_CLK	15	16	DDC_DATA
GND	17	18	+5V
HPDET	19		

HDMI right angle with screw hole, SMD 90° 19pin

Table 20   PS-KBMS1 Internal PS/2 Keyboard & Mouse

Pin	Signal Name	Pin	Signal Name
1	KB_DATA	2	NC
3	GND	4	KB_PWR
5	KB_CLK	6	NC
7	MS_DATA	8	NC
9	GND	10	KB_PWR
11	MS_CLK	12	NC
13	GND	14	GND
15	GND	16	GND

DIP 6/6P MH11061-P36-4F 90D (F) Kb/Ms for PC99 CONNECTOR

1.8   Main Board Pin Assignments

1.8.1 Internal Connector List

Table 21   Internal Connector List

Label	Function
DIMM1	*DDR3 Memory SO-DIMM Socket*
DIMM2	*DDR3 Memory SO-DIMM Socket*
CPU_FAN1	*CPU FAN Wafer*
CHA_FAN1	*SYSTEM FAN Wafer*
MPCIE1	*PCIE x 1 Slot*
IR1	*rDA Pin Header*
LVDS1	*LVDS Panel Pin Header*
BL1	*Panel Backlight Wafer*
ATXPWR1	*24-pin ATX Power Input Connector*
CN1	*Debug port Connector*
COM2	*RS-232 Port 2 Box Header*
COM3	*RS-232 Port 3 Box Header*
COM4	*RS-232 Port 4 Box Header*
COM5	*RS-232 Port 5 Box Header*
COM6	*RS-232 Port 6 Box Header*
SATA1	*Serial ATA Connector*
SATA2	*Serial ATA Connector*
SATA3	*Serial ATA Connector*
SATA4	*Serial ATA Connector*
SATA5	*Serial ATA Connector* *(The fifth SATA connector signals share with Mini-PCIe slot,)*
USB1	*USB2.0 Port 4, 5 Pin Header*
USB2	*USB2.0 Port 8, 9 Pin Header*
AMP_L1	*Left Channel 2W Audio AMP Output Wafer*
AMP_R1	*Right Channel 2W Audio AMP Output Wafer*
BAT1	*CR2032 Battery Holder*
PCIE1	*PCIExpress X16 Slot*
SPDIF1	*S/PDIF Pin Header*
DIO1	*16-bits DIO Connector* *(8-bits Input and 8-bits Output)*
BZ1	*Buzzer*
FP1	*Front Panel Audio Pin Header*
FP2	*Front Panel 2 Pin Header*
FP3	*Front Panel 3 Pin Header*
CF1	*CF socket*

DIMM 1&2 DDR3 Memory SO-DIMM Slot
DDR3 1.5V High=5.2mm STD

Table 22   CPU_FAN1 CPU FAN Wafer

Pin	Signal
1	GND
2	+12V
3	FAN_CPU_TACH
4	FAN_CPU_CTRL

Pitch: 2.54mm WAFER

Table 23   CHA_FAN1 SYSTEM FAN Wafer
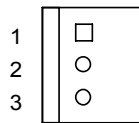
Pin	Signal
1	GND
2	+12V
3	HW_FANIN1

Pitch: 2.54mm WAFER

Table 24   IR1 IrDA remote control Wafer
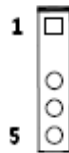
Pin	Signal Name
1	+5v
2	NC
3	IRRX
4	GND
5	IRTX

Pitch: 2.54mm

Table 25   CN1 LPC Box Header
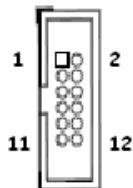
Pin	Signal	Pin	Signal
1	+3.3V	2	GND
3	GND	4	LPC_LAD3
5	LPC_RST#	6	LPC_LAD2
7	CLK33_LPC	8	LPC_LAD1
9	LPC_FRAME#	10	LPC_LAD0
11	SERIEQ	12	LPC_LDRQ1

Pitch: 1.27 mm

Table 26   MPCIE1 Mini PCIe Connector
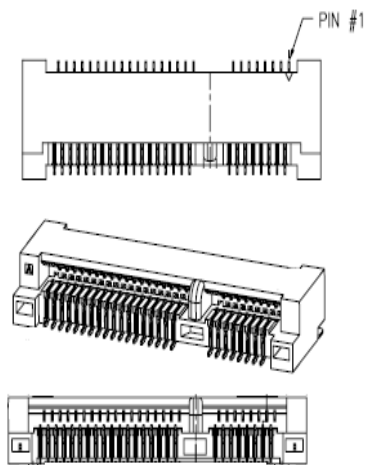
Signal	Pin	Pin	Signal
WAKE#	1	2	+3.3V
Reserved	3	4	Ground
Reserved	5	6	+1.5V
CLKEQ#	7	8	UIM_PWR
Ground	9	10	UIM_DATA
REFCLK-	11	12	UIM_CLK
REFCLK+	13	14	UIM_RESET
Ground	15	16	UIM_VPP
Reserved	17	18	Ground
Reserved	19	20	W_disable#
Ground	21	22	PERST#
PERn0	23	24	+3VSB
PERp0	25	26	Ground
Ground	27	28	+1.5V
Ground	29	30	SMB_CLK
PETn0	31	32	SMB_DATA
PETp0	33	34	Ground
Ground	35	36	USB_D-
Reserved	37	38	USB_D+
Reserved	39	40	Ground
Reserved	41	42	LED_WWAN#
Reserved	43	44	LED_WAN#
Reserved	45	46	LED_WPAN#
Reserved	47	48	+1.5V
Reserved	49	50	Ground
Reserved	51	52	+3.3V

MINI PCI-Express Connector

Table 27   SATA1, SATA2, SATA3, SATA4 Serial ATA Connector
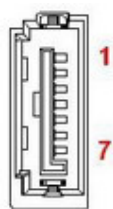
Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

SATA CONNECTOR BLUE

Table 28 SATA5 Serial ATA Connector
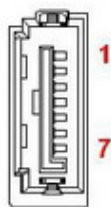
Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

SATA CONNECTOR BLACK

Table 29 COM2,COM3,COM4,COM5,COM6 RS-232 Box Header
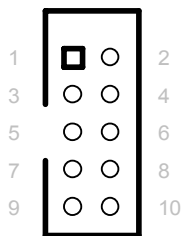
Pin	Signal
1	DCD, Data carrier detect
2	RXD, Receive data
3	TXD, Transmit data
4	DTR, Data terminal ready
5	GND, ground
6	DSR, Data set ready
7	RTS, Request to send
8	CTS, Clear to send
9	RI, Ring indicator
10	NC

DIP 10P 2R 180° Pitch: 2.0mm WAFER

Table 30 USB1,USB2 USB Pin Header
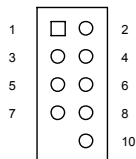
Pin	Signal Name	Pin	Signal Name
1	+5V	2	+5V
3	USB2-	4	USB3-
5	USB2+	6	USB3+
7	GND	8	GND
9	KEY	10	GND

Pitch: 2.54mm

Table 31   ATXPWR1 24-pin ATX Power Input Connector
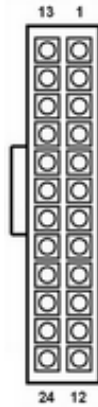
Pin	Signal	Pin	Signal
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	POWER OK	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

Pitch: 3.96mm
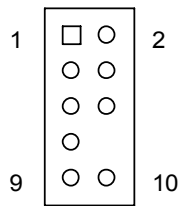
Table 32   FP3 Digital Input / Output Pin Header

Pin	Signal	Pin	Signal
1	MIC_L	2	GND
3	MIC_R	4	ACZ_DET#
5	LIN_R	6	MIC_JD
7	SENSE	8	NC
9	LIN_L	10	LINE_JD

Pitch: 2.54mm
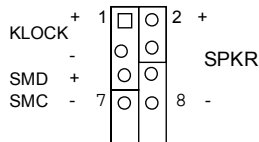
Table 33   FP2 Front Panel 2 Pin Header

Pin	Signal	Pin	Signal
1	Keyboard Lock	2	Speaker +
3	GND	4	NC
5	SMBus Data	6	NC
7	SMBus Clock	8	Speaker -

Pitch: 2.54mm
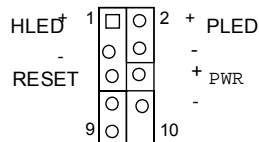
Table 34   FP1 Front Panel 1 Pin Header

Pin	Signal	Pin	Signal
1	HDD LED +	2	Power LED +
3	HDD LED -	4	Power LED -
5	Reset Button +	6	Power Button +
7	Reset Button -	8	Power Button -
9	NC	10	KEY

Pitch: 2.54mm

Table 35   CF1 CF Type II Connector
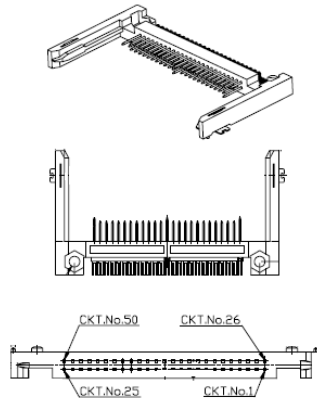
Signal Name	Pin	Pin	Signal Name
GND	1	26	GND
IDE Data 3	2	27	IDE Data 11
IDE Data 4	3	28	IDE Data 12
IDE Data 5	4	29	IDE Data 13
IDE Data 6	5	30	IDE Data 14
IDE Data 7	6	31	IDE Data 15
IDE Chip select 1#	7	32	IDE Chip select 3#
GND	8	33	GND
GND	9	34	IDEIOR#
GND	10	35	IDEIOW#
GND	11	36	+5V
GND	12	37	IDEIRQ
+5V	13	38	+5V
GND	14	39	PCSEL
GND	15	40	NC
GND	16	41	Reset IDE
GND	17	42	IDEIORDY
SDA2	18	43	DREQ
IDE Address 1	19	44	DACK#
IDE Address 0	20	45	IDE activity
IDE Data 0	21	46	PDIAG#
IDE Data 1	22	47	IDE Data 8
IDE Data 2	23	48	IDE Data 9
IOIS16#	24	49	IDE Data 10
GND	25	50	GND

SMD MALE 50P 90D 2R stand-off 0mm, Standard type

Table 36   AMP_R1 Audio AMP Right Output Wafer
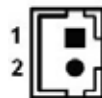
Pin	Signal Name
1	Speaker+
2	Speaker-

Pitch=2.0mm WAFER

Table 3 7 AMP_L1 Audio AMP Left Output Wafer
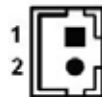
Pin	Signal Name
1	Speaker+
2	Speaker-

Pitch=2.0mm WAFER

Table 38   SPDIF1 S/PDIF Pin Header
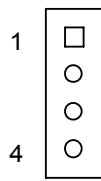
Pin	Signal Name
1	S/PDIF In
2	GND
3	S/PDIF Out
4	GND

P-2.54mm

Table 39   DIO1 Digital Input / Digital Output Pin Header
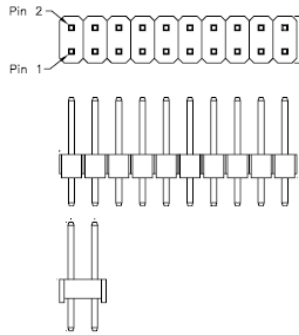
Pin	Signal	Pin	Signal
1	+5V	2	GND
3	DO0	4	DI0
5	DO1	6	DI1
7	DO2	8	DI2
9	DO3	10	DI3
11	DO4	12	DI4
13	DO5	14	DI5
15	DO6	16	DI6
17	DO7	18	DI7

DIP 18P 2R MALE STRAIGHT TYPE Pitch: 2.54mm

Table40   BL1 LVDS Backlight Inverter Wafer

Pin	Signal Name
1	Backlight Control
2	GND
3	Backlight Power
4	Backlight Power
5	Backlight Enable

Pitch: 2.0mm

Table 41　LVDS1 Channel 1 LVDS Connector
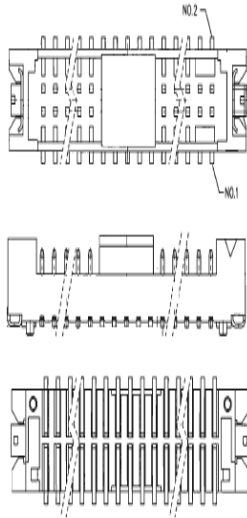
Pin	Signal Name	Pin	Signal Name
1	+3.3V	2	+5V
3	+3.3V	4	+5V
5	DDC_CLK	6	DDC_DATA
7	GND	8	GND
9	LVDS0_DATA1	10	LVDS0_DATA0
11	LVDS0_DATA#1	12	LVDS0_DATA#0
13	GND	14	GND
15	LVDS0_DATA3	16	LVDS0_DATA2
17	LVDS0_DATA#3	18	LVDS0_DATA#2
19	GND	20	GND
21	LVDS1_DATA1	22	LVDS1_DATA0
23	LVDS1_DATA#1	24	LVDS1_DATA#0
25	GND	26	GND
27	LVDS1_DATA3	28	LVDS1_DATA2
29	LVDS1_DATA#3	30	LVDS1_DATA#2
31	GND	32	GND
33	LVDS1_CLK	34	LVDS0_CLK
35	LVDS1_CLK#	36	LVDS0_CLK#
37	GND	38	GND
39	+12V	40	+12V

Pitch: 1.25mm

Chapter 2

This chapter tells how to change the system settings through the BIOS Setup menus.
You may need to run the Setup program when:

▶ An error message appears on the screen during the system booting up, and requests you to run SETUP.
▶ You want to change the default settings for customized features.

BIOS Setup

2.1 BIOS setup program

This chapter provides a description of the AMI BIOS. The BIOS setup menus and available selections may vary from those of your product.

AMI's ROM BIOS provides a built-in Setup program, which allows the user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will not need to be changed unless there is a configuration change in the system, such as a hard drive replacement or when a device is added.

It is possible for the CMOS battery to fail, which will cause data loss in the CMOS only. If this happens you will need to reconfigure your BIOS settings.

2.2 Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <Del> key to enter Setup.

Press Del to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

2.3 The Menu Bar

```
                          BIOS SETUP UTILITY
  Main      Advanced      Boot      Security      Save  &  Exit

  BIOS Information                                     Set the Date. Use Tab to switch
  Version                  MX57QM (71301) BIOS V1.00   between Data elements.
  Build Date               12/24/2010
                                                       Use [+] or [-] to
  CPU Information                                       configure system Time.
  Intel® Core ™ i5 CPU     M 450 @ 2.40 GHz
  Microcode Revision       2
  Processor Cores          2                           → ← Select Screen
                                                       ↑↓ Select Item
  Memory Information                                   Enter: Select
  Total Memory             1024 MB (DDR3 1066)         +- Change Opt.
                                                       F1: General Help
  System Date              [Tue 12/30/2010]            F2: Previous Values
  System Time              [10:42:50]                  F3: Optimized Defaults
                                                       F4 Save   ESC Exit

          Version 2.00.1201. Copyright (C) 2009, American Megatrends, Inc.
```

▶ **Main**

Use this menu for basic system configurations, such as time, date etc.

▶ **Advanced**
▶ Use this menu to set up the items of special enhanced features.

▶ **Boot**

Use this menu to specify the priority of boot devices.

▶ **Security**

Use this menu to set supervisor and user passwords.

▶ **Exit**

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU	Increase the numeric value or make
<-/PD>	Decrease the numeric value or make
<F3>	Load Optimized Defaults
<F2>	Load Previous Values
<F4>	Save all the CMOS changes and exit
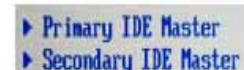
Getting Help
After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu
The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu
If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options

▶ Primary IDE Master
▶ Secondary IDE Master

for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>
The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

2.4 Main Setup

The BIOS Setup is accessed by pressing the DEL key after the Power-On Self-Test (POST) memory test begins and before the operating system boot begins. Once you enter the BIOS Setup Utility, the Main Menu will appear on the screen. The Main Menu provides System Overview information and allows you to set the System Time and Date. Use the "<" and ">" cursor keys to navigate between menu screens.

BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit

```
BIOS Information                                          Set the Date. Use Tab to switch
Version                   MX57QM (71301) BIOS V1.00       between Data elements.
Build Date                12/24/2010
                                                          Use [+] or [-] to
CPU Information                                            configure system Time.
Intel® Core ™ i5 CPU      M 450 @ 2.40 GHz
Microcode Revision        2
Processor Cores           2                               → ← Select Screen
                                                          ↑↓ Select Item
Memory Information                                        Enter: Select
Total Memory              1024 MB (DDR3 1066)             +- Change Opt.
                                                          F1: General Help
System Date               [Tue 12/30/2010]                F2: Previous Values
System Time               [10:42:50]                      F3: Optimized Defaults
                                                          F4 Save   ESC Exit
```

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▶ **AMI BIOS, Processor, System Memory**

These items show the firmware and hardware specifications of your system. Read only.

▶ **System Date**

The date format is <Day>, <Month> <Date> <Year>.

▶ **System Time**

The time format is <Hour> <Minute> <Second>.

2.5 Advanced BIOS Setup

Advanced Menu

Main	**Advanced**	Boot	Security	Save & Exit

```
                        BIOS SETUP UTILITY

  Onboard LAN 1 Controller      [Enabled]
  Onboard LAN 2 Controller      [Enabled]
  Launch PXE OpROM              [Disabled]
  Audio Controller              [Enabled]
  Audio Amplifier               [2.5 V]
                                              → ← Select Screen
  Keyboard Lock                 [Disabled]    ↑↓ Select Item
                                              Enter: Select
  >Trusted Computing                          +- Change Opt.
  >CPU Configuration                          F1: General Help
  >Display Configuration                      F2: Previous Values
  >Power Management Configuration             F3: Optimized Defaults
  >North Bridge                               F4 Save   ESC Exit
  >South Bridge
  >SATA Configuration
  >Intel TDT(AT-p) Configuration
  >Intel TXT(LT) Configuration
  >USB Configuration
  >Super IO Configuration
  >HW Monitor


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```

Press <Enter> to select a sub-menu for detailed options.

Audio Amplifier
Options: 0.0V, 0.5V, 1.0V, 1.5V, 2.0V, 2.5V, 3.0V, 3.5V, 4.0V, 4.5V, 5.0V.

Trusted Computing
TPM Support Options: Disable [Default], Enable

Advanced Menu – CPU Configuration

BIOS SETUP UTILITY				
M a i n	**A d v a n c e d**	**B o o t**	**S e c u r i t y**	**S a v e & E x i t**

```
CPU Configuration                                      Enabled for Windows XP and
Intel® Core™ i5 CPU           M520      @ 2.4GHz        Linux (OS optimized for
EMT64                         Supported                Hyper-Threading Technology).
Processor Speed               2394 MHz                 And Disabled for other OS (OS
Processor Stepping            20652                    not optimized for
Microcode Revision            9                        Hyper-Threading Technology)
Processor Cores               2                        When Disabled only one thread
Intel HT technology           Supported                per enabled core is enabled.

Hyper-threading               [Enabled]
Active Processor Cores        [All]                    → ← Select Screen
Limit CUPID Maximum           [Disabled]               ↑↓ Select Item
Hardware Prefetcher           [Enabled]                Enter: Select
Adjacent Cache Line Prefetch  [Enabled]                +- Change Opt.
Intel Virtualization Technology  [Enabled]             F1: General Help
Power Technology              [Custom]                 F2: Previous Values
EIST                          [Enabled]                F3: Optimized Defaults
Turbo Mode                    [Enabled]                F4 Save   ESC Exit
P-State Coordination          [HW_ALL]
CPU C3 Report                 [Disabled]
CPU C6 Report                 [Disabled]
Package C State Limit         [No Limit]
TDC Limit                     0
TDP Limit                     0
```

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Hyper-threading
Options: Disabled, Enabled [Default]
Active Processor Cores
Options: All [Default], 1, 2
Limit CPUID Maximum
Options: Disabled [Default], Enabled
Hardware Prefetcher
Options: Disabled, Enabled [Default]
Adjacent Cache Line Prefetch
Options: Disabled, Enabled [Default]
Intel Virtualization Technology
Options: Disabled, Enabled [Default]
Power Technology
Options: Disable, Energy Efficient, Custom [Default]
EIST
Options: Disabled, Enabled [Default]
Turbo Mode
Options: Disabled, Enabled [Default]
P-STATE Coordination
Options: HW_ALL [Default], SW_ALL, SW_ANY
CPU C3 Report
Options: Disabled [Default], ACPI C-2, ACPI C-3
CPU C6 Report
Options: Disabled [Default], Enabled
Package C State Limit
Options: C0, C1, C3, C6, C7, No Limit [Default]

Advanced Menu – Display Configuration

IGD Memory
Options: Disabled, 32M [Default], 64M, 128M

DVMT/FIXED Memory
Options: 128MB, 256MB [Default], Maximum

IGD – Boot Type
Options: VBIOS Default [Default], CRT, LVDS, CRT + LVDS

LCD Panel Type
Options: VBIOS Default, 640 x 480 18 Bit, 800 x 600 18 Bit, 1024 x 768 18 Bit, 1024 x 768 24 Bit, 1280 x 1024 24 Bit, 1366 x 768 24 Bit, 1400 x 1050 18 Bit, 1440 x 900 24 Bit, 1600 x 1200 24 Bit, 1280 x 768 24 Bit, 1680 x 1050 18 Bit, 1680 x 1050 24 Bit, 1920 x 1080 24 Bit, 1920 x 1200 24 Bit, 1280 x 800 18 Bit, 1280 x 600 18 Bit.

Panel backlight Voltage
Options: 0.0V, 0.5V, 1.0V, 1.5V, 2.0V, 2.5V [Default], 3.0V, 3.5V, 4.0V, 4.5V, 5.0V.

Advanced Menu – Power Management Configuration

BIOS SETUP UTILITY				
Main	**Advanced**	**Boot**	**Security**	**Save & Exit**

```
ACPI Sleep State                [S3 (suspend to R…]      Select the highest ACPI sleep
Restore AC Power Loss           [Power Off]              state the system will enter,
Wake System with Fixed Time     [Disabled]               when the SUSPEND button is
Wake System with Dynamic Time   [Disabled]               pressed.
PS/2 Wake Up                    [Disabled]


                                                         → ← Select Screen
                                                         ↑↓ Select Item
                                                         Enter: Select
                                                         +- Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4 Save   ESC Exit
```

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ACPI Sleep State
Options: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM)
[Default]

Restore AC Power Loss
Options: Power Off [Default], Power On, Last State

Wake System with Fixed time
Options: Disabled [Default], Enabled

Wake System with Dynamic Time
Options: Disabled [Default], Enabled

PS/2 Wake Up
Options: Disabled [Default], Enabled

Advanced Menu – North Bridge

Main	Advanced	Boot	Security	Save & Exit

BIOS SETUP UTILITY

Memory Information

CPU Type	Arrandale	
Total Memory	1024 MB DDR3 1066)	
Memory Slot0	0 MB (DDR3 1066)	
Memory lot1	1024 MB (DDR3 1066)	
CAS# latency(tCL)	8	
RAS# Active Time(tRPAS)	20	
Row Precharge Time(tRP)	8	
RAS# to CAS# Delay(tRCD)	8	
Write Recovery Time	8	
Row Refresh Cycle Timea(tRFC)	60	
Write to Read Delay(tWTR)	4	
Active to Active Delay(tRRD)	4	
Read CAS# Precharge(tRTP)	5	
Low MMIO Align	[64M]	
Initiate Graphic Adapter	[PEG/IGD]	
Graphics Turbo IMON Current	31	
VT-d	[Disabled]	
PCI Express Compliance Mode	[Disabled]	
PCI Express Port	[Auto]	
PAVP Mode	[Disabled]	
PEG Force Gen1	[Disabled]	

Low MMIO resources align at 64MB/1024MB

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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Low MMIO Align
Options: 64M [Default], 1024M
Initiate Graphic Adapter
Options: PCI/IGD, PCI/PEG, PEG/IGD [Default], PEG/PCI, IGD
Graphics Turbo IMON Current
Options: 31 only
VT-d
Options: Disabled [Default], Enabled
PCI Express Compliance Mode
Options: Disabled [Default], Enabled
PCI Express Port
Options: Disabled, Enabled, Auto [Default]
PAVP Mode
Options: Disabled [Default], Enabled
PEG Force Gen1
Options: Disabled [Default], Enabled

Advanced Menu – South Bridge

BIOS SETUP UTILITY				
Main	**Advanced**	Boot	Security	Save & Exit

SB Chipset Configuration   SMBus Controller help.
SMBus Controller   [Enable]
Onboard LAN 1 Controller   [Enable]
Wake on LAN from S5   [Enable]
SLP_S4 Assertion Stretch Enable [Enable]
SLP_S4 Assertion Width   [4-5 Seconds]

Audio Configuration   → ← Select Screen
Audio Controller   [Enabled]   ↑↓ Select Item
Azalia Internal HDMI Codec   [Enable]   Enter: Select
                                                               +- Change Opt.
High Precision Event Timer Configuration   F1: General Help
High Precision Timer   [Enabled]   F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4 Save   ESC Exit

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SMBus Controller
Options: Disable, Enable [Default]
Onboard LAN 1 Controller
Options: Disable, Enable [Default]
Wake on LAN from S5
Options: Disable, Enable [Default]
SLP_S4 Assertion Stretch Enable
Options: Disable, Enable [Default]
SLP_S4 Assertion Width
Options: 1-2 Seconds, 2-3 Seconds, 3-4 Seconds, 4-5 Seconds [Default]
Audio Controller
Options: Disabled, Enabled [Default]
Azalia Internal HDMI Codec
Options: Disable, Enable [Default]
High Precision Timer
Options: Disabled, Enabled [Default]

Advanced Menu – SATA Configuration

BIOS SETUP UTILITY				
Main	**Advanced**	Boot	Security	Save & Exit

```
SATA Configuration
SATA Port1                    Not Present
SATA Port2                    Not Present
SATA Port3                    Not Present
SATA Port4                    Not Present          → ← Select Screen
SATA Port5                    Not Present          ↑↓ Select Item
CF Card                     Not Present            Enter: Select
                                                   +- Change Opt.
SATA Mode                     [IDE Mode]           F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4 Save   ESC Exit
```

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IDE Mode
Options: Disable, IDE Mode [Default], AHCI Mode, RAID Mode

Advanced Menu – Intel TDT (AT-p) Configuration

BIOS SETUP UTILITY				
Main	**Advanced**	Boot	Security	Save & Exit

```
Intel Theft Deterrence technology Configuration      Enable/Disable TDT in BIOS for
                                                     testing only.
TDT                           [Disabled]
TDT recovery                  3

                                                     → ← Select Screen
                                                     ↑↓ Select Item
                                                     Enter: Select
                                                     +- Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4 Save   ESC Exit
```

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TDT
Options: Disabled [Default], Enabled

Advanced Menu – Intel TXT (LT) Configuration

BIOS SETUP UTILITY				
M a i n	**A d v a n c e d**	B o o t	S e c u r i t y	S a v e & E x i t

Intel Trusted Execution Technology Configuration

SMX Feature Support: [Disabled]
Intel TXT(LT) Support   [Disabled]

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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SMX Feature Support
Options: Disabled [Default], Enabled

Intel TXT (LT) Support
Options: Disabled [Default], Enabled

Advanced Menu – USB Configuration

BIOS SETUP UTILITY				
M a i n	**A d v a n c e d**	B o o t	S e c u r i t y	S a v e & E x i t

USB Configuration

USB Devices:
    1 Keyboard, 1 Mouse, 2 Hubs

Legacy USB Support   [Enabled]
Device Reset timeout   [20 sec]

Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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Legacy USB Support
Options: Enabled [Default], Disabled, Auto

Device Reset Timeout
Options: 10 sec, 20 sec [Default], 30 sec, 40 sec

Advanced Menu – Super IO Configuration

```
                        BIOS SETUP UTILITY
  M a i n    A d v a n c e d    B o o t    S e c u r i t y    S a v e  &  E x i t

  Super IO Configuration                              Set Parameters of Serial Port 1
                                                      (COMA)
  Super IO Chip    :              IT8783F
  >Serial Port 1 Configuration
  >Serial Port 2 Configuration
  >Serial Port 3 Configuration
  >Serial Port 4 Configuration                        → ← Select Screen
  >Serial Port 5 Configuration                        ↑↓ Select Item
  >Serial Port 6 Configuration                        Enter: Select
                                                      +- Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4 Save   ESC Exit

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```

Advanced Menu – Super IO Configuration – Serial Port 1 Configuration

```
                        BIOS SETUP UTILITY
  M a i n    A d v a n c e d    B o o t    S e c u r i t y    S a v e  &  E x i t

  Serial Port 1 Configuration                         Enable or Disable Serial Port
                                                      (COM)
  Serial Port               [Enabled]
  Device Settings           IO=3F8h; IRQ=4;

  Change Settings           [AUTO]
  Serial Port 1 Type        [RS232]                   → ← Select Screen
                                                      ↑↓ Select Item
                                                      Enter: Select
                                                      +- Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4 Save   ESC Exit

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```

Serial Port
Options: Enabled [Default], Disabled

Change Settings
Options: Auto, IO=3F8h [Default]; IRQ=4 [Default]; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Serial Port 1 Type
Options: RS232 [Default], RS422, RS485

Advanced Menu – Super IO Configuration – Serial Port 2 Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit

Serial Port 2 Configuration   Enable or Disable Serial Port
                                                                         (COM)
Serial Port   [Enabled]
Device Settings   IO=2F8h; IRQ=3;

Change Settings   [AUTO]
                                                                         → ← Select Screen
                                                                         ↑↓ Select Item
                                                                         Enter: Select
                                                                         +- Change Opt.
                                                                         F1: General Help
                                                                         F2: Previous Values
                                                                         F3: Optimized Defaults
                                                                         F4 Save   ESC Exit

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Serial Port
Options: Enabled [Default], Disabled

Change Settings
Options: Auto, IO=2F8h [Default]; IRQ=3 [Default]; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Advanced Menu – Super IO Configuration – Serial Port 3 Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit

Serial Port 3 Configuration   Enable or Disable Serial Port
                                                                         (COM)
Serial Port   [Enabled]
Device Settings   IO=3E8h; IRQ=7;

Change Settings   [AUTO]
Device Mode   [Standard Serial…]   → ← Select Screen
                                                                         ↑↓ Select Item
                                                                         Enter: Select
                                                                         +- Change Opt.
                                                                         F1: General Help
                                                                         F2: Previous Values
                                                                         F3: Optimized Defaults
                                                                         F4 Save   ESC Exit

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Serial Port
Options: Enabled [Default], Disabled

Change Settings
Options: Auto, IO=3E8h [Default]; IRQ=7 [Default]; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Device Mode
Options: Standard Serial Port Mode, IrDA 1.0 (HP SIR) Mode

Advanced Menu – Super IO Configuration – Serial Port 4 Configuration

		BIOS SETUP UTILITY			
M a i n	**A d v a n c e d**	B o o t	S e c u r i t y	S a v e & E x i t	

```
Serial Port 4 Configuration                               Enable or Disable Serial Port
                                                          (COM)
Serial Port                          [Enabled]
Device Settings                      IO=2E8h; IRQ=5;

Change Settings                      [AUTO]
Device Mode                          [Standard Serial…]   → ← Select Screen
                                                          ↑↓ Select Item
                                                          Enter: Select
                                                          +- Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4 Save   ESC Exit
```

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Serial Port
Options: Enabled [Default], Disabled

Change Settings
Options: Auto, IO=2E8h [Default]; IRQ=5; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Device Mode
Options: Standard Serial Port Mode, IrDA 1.0 (HP SIR) Mode

Advanced Menu – Super IO Configuration – Serial Port 5 Configuration

Main	Advanced	Boot	Security	Save & Exit

Serial Port 5 Configuration

Serial Port   [Enabled]
Device Settings   IO=2F0h; IRQ=10;

Change Settings   [AUTO]
Device Mode   [Standard Serial…]

Enable or Disable Serial Port (COM)

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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Serial Port
Options: Enabled [Default], Disabled

Change Settings
Options: Auto, IO=2E0h [Default]; IRQ=10; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Device Mode
Options: Standard Serial Port Mode, IrDA 1.0 (HP SIR) Mode

Advanced Menu – Super IO Configuration – Serial Port 6 Configuration

BIOS SETUP UTILITY				
Main	**Advanced**	Boot	Security	Save & Exit

Serial Port 6 Configuration

Serial Port	[Enabled]	
Device Settings	IO=2E0h; IRQ=6;	
Change Settings	[AUTO]	
Device Mode	[Standard Serial...]	

Enable or Disable Serial Port (COM)

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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Serial Port
Options: Enabled, Disabled

Change Settings
Options: Auto, IO=2F0h [Default]; IRQ=6; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;

Device Mode
Options: Standard Serial Port Mode, IrDA 1.0 (HP SIR) Mode

Advanced Menu – H/W Monitor

```
                        BIOS SETUP UTILITY
  Main      Advanced      Boot      Security        Save  &  Exit

  PC Health Status
  CPU Warning Temperature            [Disabled]
  CPU Shutdown Temperature           [Disabled]
  CPU Smart FAN                      [Enabled]
  CPU Temperature Off Limit          20
  CPU Temperature Start Limit        40
  CPU Temperature Full Limit         55
  CPU Start PWM                      70
  CPU Start FAN SLOPE                [0.5 PWM]

  CPU temperature                    : +32 C
  System temperature                 : +32 C
  CPU FAN Speed                      : N/A          → ← Select Screen
  SYS FAN Speed                      : N/A          ↑↓ Select Item
  VCORE                              : +1.104 V     Enter: Select
  1.5V                               : +1.568 V     +- Change Opt.
  5V                                 : +5.068 V     F1: General Help
  VCC                                : +3.361 V     F2: Previous Values
  12V                                : +11.904 V    F3: Optimized Defaults
  VBAT                               : +1.624 V     F4 Save   ESC Exit


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```

CPU Warning Temperature
Options: Disabled [Default], 80 C, 85 C, 90 C, 95 C

CPU Shutdown Temperature
Options: Disabled [Default], 80 C, 85 C, 90 C, 95 C

CPU Smart FAN
Options: Enabled [Default], Disabled

CPU Smart FAN SLOPE
Options: 0.125 PWM, 0.25 PWM, 0.5 PWM [Default], 1 PWM, 2 PWM, 4 PWM, 8 PWM, 15 PWM

2.6   Boot Setting Configuration

Boot Menu

BIOS SETUP UTILITY				
M a i n	A d v a n c e d	**B o o t**	S e c u r i t y	S a v e & E x i t

Boot Configuration

Quiet Boot   [Disabled]

Fast Boot   [Disabled]

Setup Prompt Timeout   1

Bootup NumLock State   [On]

Boot Option Priorities

Enables/Disables Quiet Boot option

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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Quiet Boot
Options: Disabled, Enabled

Fast Boot
Options: Disabled, Enabled

Bootup NumLock State
Options: On, Off

2.7 Security Setup

Security Menu

BIOS SETUP UTILITY				
M a i n	**A d v a n c e d**	**B o o t**	**S e c u r i t y**	**S a v e & E x i t**

Password Description

If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights

Set Setup Administrator Password

→ ← Select Screen
↑↓ Select Item
Enter: Select
+- Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4 Save   ESC Exit

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2.8   Exit Menu

Save & Exit Menu

BIOS SETUP UTILITY				
M a i n	**A d v a n c e d**	**B o o t**	**S e c u r i t y**	**S a v e & E x i t**

```
Save Changes and Exit                          Exit system setup after saving
Discard Changes and Exit                       the changes.
Save Changes and Reset
Discard Changes and Reset

Save Options
Save Changes
Discard Changes

Restore Defaults                               → ← Select Screen
Save as User Defaults                          ↑↓ Select Item
Restore User Defaults                          Enter: Select
                                               +- Change Opt.
Boot Override                                  F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4 Save   ESC Exit
```

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Save Changes and Exit
Exit system setup after saving the changes. Once you are finished making
your selections, choose this option from the Exit menu to ensure the values
you selected are saved to the CMOS RAM. The CMOS RAM is sustained by
an onboard backup battery and stays on even when the PC is turned off. When
you select this option, a confirmation window appears. Select [Yes] to save
changes and exit.

Discard Changes and Exit
Exit system setup without saving any changes. Select this option only if you do
not want to save the changes that you made to the Setup program. If you
made changes to fields other than system date, system time, and password,
the BIOS asks for a confirmation before exiting.

Discard Changes
Discards changes done so far to any of the setup values. This option allows
you to discard the selections you made and restore the previously saved
values. After selecting this option, a confirmation appears. Select [Yes] to
discard any changes and load the previously saved values.

Load Optimal Defaults
Load Optimal Default values for all the setup values. This option allows you to
load optimal default values for each of the parameters on the Setup menus,
which will provide the best performance settings for your system. The F9 key
can be used for this operation.

Load Failsafe Defaults
Load Optimal Default values for all the setup values. This option allows you to
load failsafe default values for each of the parameters on the Setup menus,
which will provide the most stable performance settings. The F8 key can be
used for this operation.

Appendix A   DIO (Digital I/O) Sample Code

```
//============================================
//MX57QM DOS DIO sample program
//Please compile with Turbo C 3.0 to utilized the program
//============================================

Int main()
{
Int RetVal;

/////////////// Write Digital Output ////////////
// Set all output to 0
RetVal = inp(0x549);
RetVal = RetVal & 0xF2;
Outp(0x549,RetVal);     // DO0 is bit3
                                // DO1 is bit2
                                // DO2 is bit0
RetVal = inp(0x50F);
RetVal = RetVal & 0xFE;
Outp(0x50F,RetVal);     // DO3 is bit0

RetVal = inp(0x53B);
RetVal = RetVal & 0xF8;
Outp(0x53B,RetVal);     // DO4 is bit2
                                // DO5 is bit1
                                // DO6 is bit0

RetVal = inp(0x539);
RetVal = RetVal & 0xEF;
Outp(0x539,RetVal);     // DO7 is bit4


// Set all output to 1
RetVal = inp(0x549);
RetVal = RetVal | 0x0D;
Outp(0x549,RetVal);     // DO0 is bit3
                                // DO1 is bit2
                                // DO2 is bit0
RetVal = inp(0x50F);
RetVal = RetVal | 0x01;
Outp(0x50F,RetVal);     // DO3 is bit0

RetVal = inp(0x53B);
RetVal = RetVal | 0x07;
Outp(0x53B,RetVal);     // DO4 is bit2
                                // DO5 is bit1
```

```
                                  // DO6 is bit0

RetVal = inp(0x539);
RetVal = RetVal | 0x10;
Outp(0x539,RetVal);    // DO7 is bit4


/////////// Read Digital Input ///////////
RetVal = inp(0xA00);     // DI[7:0] is bit[7:0]
}
```

Appendix B   WatchDog Timer Sample Code

```
//==============================================
//MX57QM DOS Watchdog sample program
//Please compile with Turbo C 3.0 to utilized the program
//==============================================

#include <stdio.h>
#include <stdlib.h>

#define SMBus_Port 0x00000400 //"AMI BIOS" PCI-SMBus init address for
INTEL ICH CHIPSET
#define SMBus_ADDR 0x9c
#define WDT_Enable_Reg 0x01     //Bit 5 is the disable/enable WDT bit(0/1))
#define WDT_Time 0x35            //MSB to disable/enable countdown(0/1)
                                 //Rest seven bits to set the reset time in sec
                                 //e.g.   000_0000 --    0 sec
                                 //       000_0001 --    1 sec
                                 //       000_0002 --    2 sec
                                 //          .
                                 //          .
                                 //          .
                                 //       111_1111 -- 127 sec

/* =============== This Routine is Check the SMBus is Ready
=============== */
void Chk_SMBUS_Ready()
{

    int status=0;
    int flag=0;
    status=inp(SMBus_Port);
    while((status | status) != 0)
    {
        while((status & 0x04) != 0)
        {
            flag=1;
            outp(SMBus_Port,status);
            delay(5);
            status=inp(SMBus_Port);

        }
        if(flag == 1)
        {
            printf("The Error Code is 0x00E0 !!! \n");
            break;
        }
        else
```

```
            {
                  delay(25);
                  outp(SMBus_Port,status);
            }
            status=inp(SMBus_Port);
      }
}

int WaitReady(int base)
{

      int STATUS;
      do{
            STATUS=inp(base);
      }while((STATUS&0x01)!=0);
      return 1;
}

int SMBUS_Read_Byte(int offset,int DEVID)
{

            int RetVal=0;
            outp(SMBus_Port,0x0fe);
            outp(SMBus_Port+0x04,DEVID+1);
            outp(SMBus_Port+0x03,offset+0);
            outp(SMBus_Port+0x02,0x48);
            delay(200);
            if(WaitReady(SMBus_Port))
            {
                  RetVal=inp(SMBus_Port+0x05);
            }
            return (int)RetVal;
}

/* =============== This Routine is Write the Device Reg Value
=============== */
void SMBUS_Write_Byte(int Dev_id,int Reg_index,int Value)
{
            outp(SMBus_Port+0x04,Dev_id);
            delay(5);
            Chk_SMBUS_Ready();
            outp(SMBus_Port+0x03,Reg_index);
            delay(5);
            outp(SMBus_Port+0x05,(Value & 0xFF));
            delay(5);
            outp(SMBus_Port+0x02,0x48);
            delay(25);
            Chk_SMBUS_Ready();
}
```

```c
//function WDT
//This function is use to set WDT
//num is the reset time in sec(max 127 sec)

int WDT(int time)
{
    int current;
    printf("SMBUS enable WDT/n");
    current=SMBUS_Read_Byte(WDT_Enable_Reg,SMBus_ADDR);
    current=(current|0x20);
    SMBUS_Write_Byte(SMBus_ADDR,WDT_Enable_Reg,current);

    printf("SMBUS Set timer and enable countdown for WDT/n");
    current=SMBUS_Read_Byte(WDT_Time,SMBus_ADDR);
    time=(time|0x80);
    SMBUS_Write_Byte(SMBus_ADDR,WDT_Time,time);
    printf("SMBUS WDT will reset in 10 Sec\n");
    return 1;
}

int main(int argc)
{
    WDT(0x0a);//set the WDT to reset in 10 Sec
    return 1;
}
```