# Installation

This chapter describes how to set up the main board hardware, including instructions on setting jumpers and connecting peripherals, switches, and indicators. Be sure to read all the safety precautions before you begin the installation procedure.
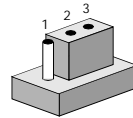
Setting jumpers

You can configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case you would connect either pins 1 and 2 or 2 and 3.
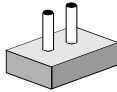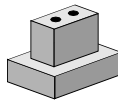
Open	Closed	Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open	Closed	Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

CPU installing and upgrading

You can upgrade to a more powerful Celeron CPU at any time. Simply remove the old CPU, install the new one, and set the jumpers for the new CPU speed.

Warning! Always disconnect the power cord from your chassis when you are working on it. Do not make connections while the power is on as sensitive electronic components can be damaged by the sudden rush of power. Only experienced electronics personnel should open the system chassis.

Caution! Always ground yourself to remove any static charge before touching the system board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.

Install a CPU in the FC-370 socket

MB-622 Series provides a Flip-Chip (FC) socket for easy CPU installation.

1. Make sure the FC-370 socket lever is in the upright position. To raise the lever, pull it out to the side a little and raise it as far as it will go.

2. Place the CPU in the empty socket. Follow the instructions that came wth the CPU. If you have no instructions, do the following: Carefully align the CPU so it is parallel to the socket and the notch on the corner of the CPU corresponds with the notch on the inside of the socket. Gently slide the CPU in. It should insert easily. If it doesn't, pull the lever up a little more.

3. Press the lever down. The plate will slide forward. You will feel some resistance as the pressure starts to secure the CPU in the socket. This is normal and won't damage the CPU.

When the CPU is installed, the lever should snap into place at the side of the socket.

Note: To remove a CPU, pull the lever out to the side a little and raise it as far as it will go. Lift the CPU chip out.

When you install a new CPU, be sure to adjust the board settings, such as CPU type and CPU clock. Improper settings may damage the CPU.

Installing SDRAM (DIMMs)

System Memory

The upper edge of the MB-662 contains two sockets for 168 pins dual inline memory module (DIMM). The socket uses 3.3 V unbuffered synchronous (SDRAM). DIMM is available in capacities of 16, 32, 64, 128, or 256 MB. The socket can be filled in the DIMM of any size, giving your MB-662 single board computer between 16 and 512 MB of memory.
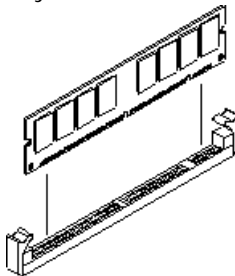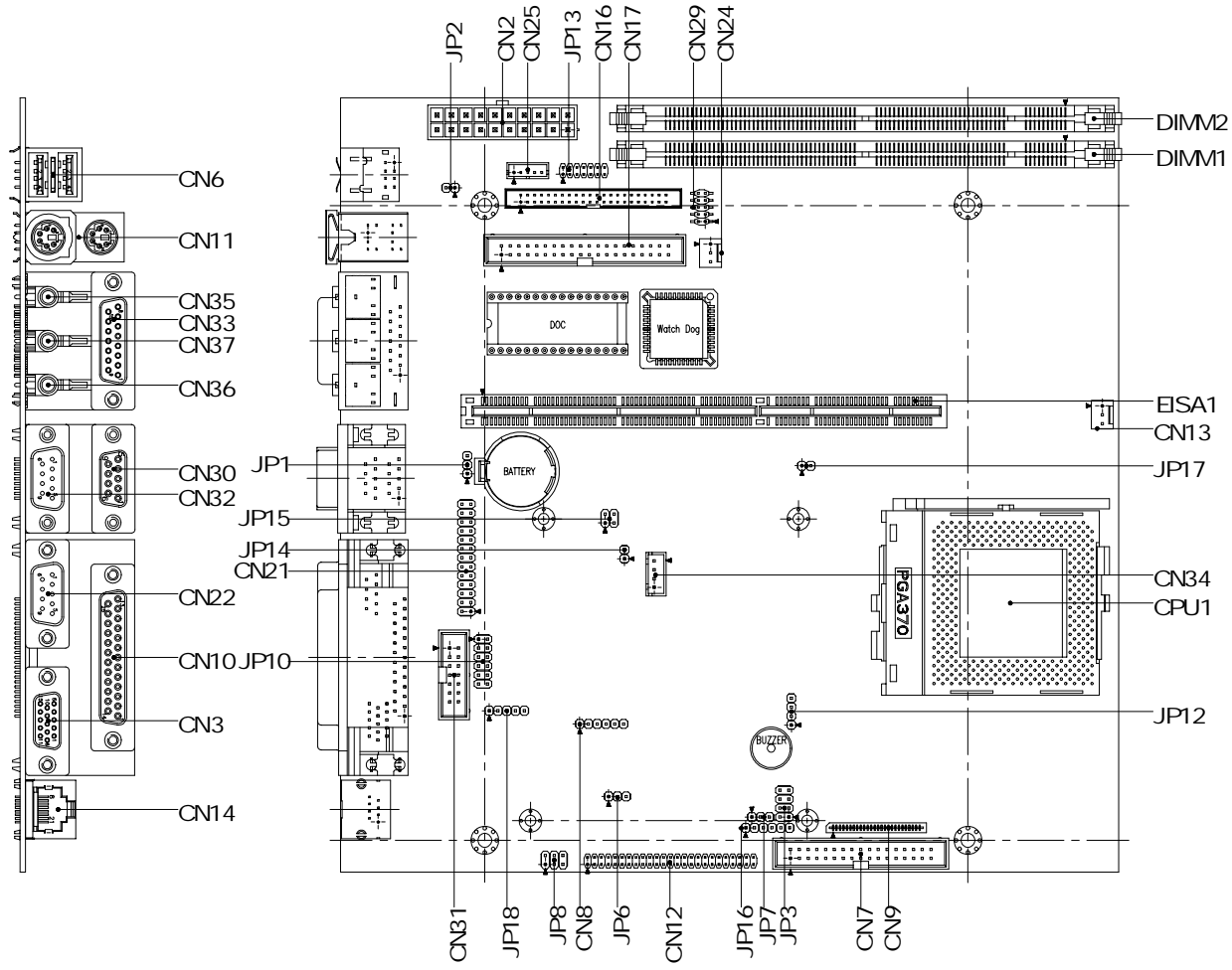
Supplementary information about DIMM

Your MB-662 can accept both regular and PC-100 SDRAM DIMM Module(with or without parity). The MB-662 can also accept PC-133 DIMM Module running at 100 Mega herts speed.

Single-sided modules are typically 16 or 128 MB; double-sided modules are usually 32 or 256 MB.

Memory Installation Procedures

To install DIMM, first make sure the two handles of the DIMM socket are in the "open" position. i.e. The handles remain outward. Slowly slide the DIMM module along the plastic guides on both ends of the socket. Then press the DIMM module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the DIMM socket. (See Figure below) To take away the memory module, just push both handles outward, and the memory module will be ejected by the mechanism in the socket.

CN6

CN11

CN35
CN33
CN37

CN36

CN30
CN32

CN22

CN10 JP10

CN3

CN14

JP2 CN2 CN25 JP13 CN16 CN17 CN29 CN24

DIMM2

DIMM1

DOC

Watch Dog

BATTERY

PGA370

EISA1
CN13

JP17

JP1

JP15

JP14
CN21

JP12

CN34
CPU1

BUZZER

CN31 JP18 JP8 CN8 JP6 CN12 JP16 JP7 JP3 CN7 CN9

List of Jumpers

Jumpers allow users to manually customize system configurations to their suitable application needs.

The following chart consist the list of each jumper function:

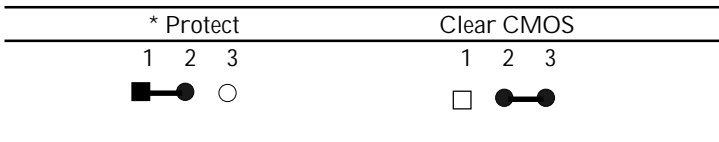| Jumpers	
Label	Function
JP1	Clear CMOS Selection
JP2	Power ON Switch
JP3	Panel Type Selection
JP6	LCD Panel Voltage Setting
JP7	LCD Clock Signal Selection
JP8	Ethernet Tx/Rx/Link LED Connector
JP10	COM4 RS-232/422/485 Selection
JP12	Speaker (external) / Buzzer
JP13	System Status LED Pin Header
JP14	Power Reset Connector
JP15	DiskOnChip (DOC) Address Selection
JP16	IR Touchscreen Power Pin Header
JP17	100/66 Mhz Frequency Select
JP18	Keyboard Lock

List of Connectors

Connectors on board access link to external devices such as hard disk drives, a keyboard, or floppy drives.

The following consist the list of each connector function:

| Connectors	
Label	Function
CN2	ATX Power Connector
CN3, CN12	Display Connectors (CRT and LCD)
CN6	USB Connector
CN7	Floppy Drive Connector
CN8	IrDA Connector
CN9	(FPC) Floppy Drive Connector
CN10	Parallel Port 1 Connector
CN11	Keyboard and Mouse Connector
CN13	CPU Fan Power Connector
CN14	RJ-45 Ethernet Connector
CN16	Primary IDE Hard Drive Connector
CN17	Secondary IDE Hard Drive Connector
CN21	Parallel Port 2 Connector
CN22	COM2 Connector
CN24	System Fan Power Connector
CN25	LCD Inverter Backlight Power Connector
CN29	Digital I/O Connector
CN30	COM3 Connector
CN31	COM4 Connector
CN32	COM1 Connector
CN33	Joystick / MIDI Port
CN34	Audio Connector for CD_IN
CN35	Phone Jack for Line_OUT
CN36	Phone Jack for MIC
CN37	Phone Jack for Line_IN

Clear CMOS Selection (JP1)

Safety precautions in setting up clear CMOS must be taken, always place jumper on protect mode. In clearing CMOS, place jumper for just a second (follow clear CMOS illustration) then, immediately return jumper to protect mode.

* Protect	Clear CMOS
1　2　3	1　2　3
■—● ○	□ ●—●

* Default

LCD Panel Voltage Setting (JP6)

The LCD panel driving voltage is set by using JP6 jumper settings illustrated as follows:

5V	* 3.3V
1　2　3	1　2　3
■—● ○	□ ●—●
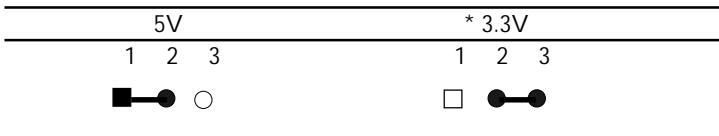
* Default

LCD Clock Signal Selection (JP7)

The LCD clock control signal is set by using JP7 jumper settings illustrated as follows:

Shift Clock	* AShift Clock
1 2 3	1 2 3
■—● ○	□ ●—●

* Default
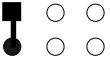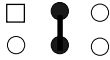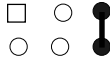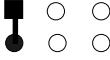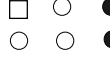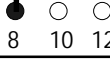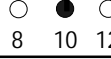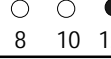
Ethernet Tx/Rx/Link LED Connector (JP8)

With ethernet Tx/Rx/Link LED indicator, the ethernet status can be trace up through LED indicator readings. The pin definitions are listed as follows:

Pin	Signal	Pin	Signal
1	Rx-LED	2	Vcc
3	Link LED	4	Vcc
5	Tx-LED	6	Vcc

COM4 RS-232/422/485 Selection (JP10)
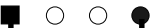
RI function or voltage selection configurations for COM3/COM2 can be set manually through jumper JP10. Jumper settings are illustrated as follows:

* RI Function	+5Vout	+12Vout
1 3 5	1 3 5	1 3 5
■○○	□●○	□○●
●○○	○●○	○○●
2 4 6	2 4 6	2 4 6
* RS-232	RS-422	RS-485
7 9 11	7 9 11	7 9 11
■○○	□●○	□○●
●○○	○●○	○○●
8 10 12	8 10 12	8 10 12

* Default

Speaker/Buzzer (JP12)

This onboard jumper provides users easy manual settings for on board buzzer and external speaker. By just following the illustration of the settings below:

* on board buzzer	external speaker
1 2 3 4	1 2 3 4
□○●—●	■○○●

* Default

System Status LED Pin Header (JP13)

LED indicator for system status, it serves as an early warning indicator and as well as a quick troubleshooting indicator. Just follow the pin definition for each 7 LEDs illustrated below:

Pin	Signal	Pin	Signal
1	Power_ON LED	2	Vcc
3	CPU_fan LED	4	Vcc
5	System_fan LED	6	Vcc
7	HDD_access LED	8	Vcc
9	Low_temperature LED (option)	10	Vcc
11	High_temperature LED (option)	12	Vcc
13	LAN_access LED	14	Vcc

DiskOnChip (DOC) Address Selection (JP15)

The DiskOnChip 2000 family of products provides a single chip solid-state flash disk in a standard 32-pin DIP package. The DiskOnChip 2000 is a solid-state disk with no moving parts, resulting in a significant reduction in power consumption and an increase in reliability. The DiskOnChip is a small plug and play Flash disk. It is easy to use. And it saves integration overhead.

The DiskOnChip 2000 family of products is available in capacities ranging from 16MB up to 288MB, unformatted. In order to manage the disk, the DiskOnChip 2000 includes the TrueFFS, M-Systems Flash File System proprietary software. The DiskOnChip 2000 package is pin-to-pin compatible with a standard 32-pin EPROM device.

D400	D800	DC00	* Disable
1 3	1 3	1 3	1 3
□ ○	□ ●	■ ○	■ ●
○ ○	○ ●	● ○	● ●
2 4	2 4	2 4	2 4

* Default

IR Touch Screen Power Pin Header (JP16)

This plug in jumper connection provides quick installation for the optional use of IR touch screen on display panels. Just refer to the pin definitions below:

Pin	Signal	Pin	Signal
1	Vcc	2	GND
3	N/C	4	N/C
5	N/C	6	N/C

100/66 Mhz Frequency Selection (JP17)

Provide the users to manually select the operating frequency with the use of jumper JP17. Illustrated setting as follows:

* 66 Mhz Frequency	100 Mhz Frequency
1 2	1 2
■━●	□ ○

* Default

Note:
FC-PGA CPUs′ frequency ratio are pre-locked within the CPUs. These CPUs run at fixed speed (frequency) regardless of the configurations listed above.If the CPU you are using requires a ratio higher than 5.5X, it is most likely pre-locked. This table is provided for those who are using older PPGA Celeron processors that do not have pre-locked multiplier.

Keyboard Lock (JP18)

Keyboard Lock (CN18)			
Pin	Signal	Pin	Signal
1	Vcc	4	KBLOCK
2	N/C	5	GND
3	GND		

ATX Power Connector (CN2)

For ease and reliability, a standard 20-pin ATX power supply connector is onboard. Which also provide positive plugging through it's guided and locking mechanism. Pin definitions as follows:

Pin	Signal	Pin	Signal
1	N/C	11	N/C
2	N/C	12	-12V
3	GND	13	GND
4	+5V	14	PON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	N/C	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

Display Connectors (CN3) and (CN12)

The MB-662's PCI SVGA interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays, including electroluminescent (EL), gas plasma, passive LCD, and active LCD displays. The board has two connectors to support these displays, one for standard CRT VGA monitors and one for flat panel displays.

VGA Display Connector (CN3)

A standard conventional D-sub connector is equipped to interface with conventional CRT displays. Refer to pin definitions as follows:

Pin	Signal
1	RED
2	GREEN
3	BLUE
4	N/C
5	Chassis GND
6	Chassis GND
7	Chassis GND
8	Chassis GND
9	V_{CC}
10	Chassis GND
11	N/C
12	DDDA
13	H-SYNC
14	V-SYNC
15	DDCK

LCD display connector (CN12)

CN12 is a 50-pin, dual-in-line header used for flat panel displays.

When the MB-662's power is applied, the control signal is low until just after the relevant flat panel signals are present.

Configuration of the VGA interface is done completely via the software utility. You do not have to set any jumpers.

Pin	Signal	Pin	Signal
1	+12 V$_{DC}$	2	+12 V$_{DC}$
3	GND	4	GND
5	+5 V$_{DC}$	6	+5 V$_{DC}$
7	ENAVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHF CLK	36	FLM (V SYS)
37	M	38	LP (H SYS)
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

USB Connector (CN6)

MB-662 is equipped with a dual port USB connector. It acquires the new generation of plug and play (Hot Plugging) feature, for both low speed and high speed devices. It could also be expanded up to 127 connections through USB hub. Refer pin definitions as follows:

USB Connector (CN6)

Pin	Signal	Pin	Signal
1	Vcc	5	Vcc
2	USBD1-	6	USBD0-
3	USBD1+	7	USBD0+
4	GND	8	GND

Floppy drive connector (CN7), FPC (CN9)

You can attach up to two floppy drives to the mainboard controller. You can use any combination of 5¼" (360 KB and 1.2 MB) and/or 3½" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy chain drive connector cable for (CN7) is required for a dual-drive system. On one end of the cable is a 34-pin flat cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3½" drives) and a printed-circuit board connector (usually used for 5¼" drives). Plus an additional Flexible Printed Circuit (FPC) connector (CN9), extra drive means extra memory for your system. An ideal way for cost effective design.

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN7. Make sure that the red or blue wire corresponds to pin 1 on the connector. No worries for CN9 FPC connector, it's guided design for error free connection.

2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.

3. If you are connecting a 5¼" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3½" floppy drive, you may have trouble determining which pin is pin number 1. Look for a number printed on the circuit board indicating pin number 1. Also, the connector on the floppy drive connector may have a slot. When the slot is up, pin number 1 should be on the right. Check the documentation that came with the drive for more information. If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

Please refer to the pin definitions on the next page.

Floppy Drive Connector (CN7)			
Pin	Signal	Pin	Signal
1	GND	2	DENSITY SELECT
3	GND	4	N/C
5	GND	6	DRIVE TYPE
7	GND	8	INDEX
9	GND	10	MOTOR 0
11	GND	12	DRIVE SELECT 1
13	GND	14	DRIVE SELECT 2
15	GND	16	MOTOR 1
17	GND	18	DIRECTION
19	GND	20	STEP
21	GND	22	WRITE DATA
23	GND	24	WRITE GATE
25	GND	26	TRACK 0
27	GND	28	WRITE PROTECT
29	GND	30	READ DATA
31	GND	32	HEAD SELECT
33	GND	34	DISK CHANGE

Note: Please refer to the next page for (CN9) pin definitions.

IrDA Connector (CN8)

How to install infrared module:

1.) Plug infrared module into IrDA connector. Caution must be taken with the connector's orientation before plugging into IrDA connector.

2.) Enable infrared function in the BIOS system setup.

IrDA connector (CN8) pin definitions:

Pin	Signal	Pin	Signal
1	Vcc	4	GND
2	FIrRx	5	IrTx
3	IrRx	6	CIrRx

Floppy Drive Connector (CN9)

(FPC) Floppy Drive Connector (CN9)			
Pin	Signal	Pin	Signal
1	Vcc	2	INDEX
3	Vcc	4	DRIVE SELECT 2
5	Vcc	6	DISK CHANGE
7	N/C	8	Vcc
9	DENSITY SELECT	10	MOTOR 0
11	N/C	12	DIRECTION
13	Vcc	14	STEP
15	GND	16	WRITE DATA
17	GND	18	WRITE GATE
19	GND	20	TRACK 0
21	GND	22	WRITE PROTECT
23	GND	24	READ DATA
25	GND	26	HEAD SELECT

Parallel Port 1 Connector (CN10) and Parallel Port 2 Connector (CN21)

The mainboard is designed to support two parallel ports. Port 1 connector (CN10) also designated as LPT1 is a standard 25-pin D-sub connector specially prepared for external interface. And port 2 connector (CN21) designated as LPT2 in the form of a 13x2 pin header connector for embedded connection purposes. Both can be enabled and disabled in the BIOS system setup. For example if LPT1 is disabled, LPT2 or LPT3 is enabled. And if LPT2 is disabled, LPT1or LPT3 is enabled. The pin definitions for both CN10 and CN21 are listed as follows: (Please turn to next page).

Parallel Port 1 Connector (CN10), 25-pin D-sub

Pin	Signal	Pin	Signal
1	/STB	2	DO
3	D1	4	D2
5	D3	6	D4
7	D5	8	D6
9	D7	10	/ACK
11	BUST	12	PE
13	/SLCT	14	/AUTOFD
15	ERR	16	/INIT
17	/SLCTINI	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	GND

Parallel Port 2 Connector (CN21), 13x2 pin header

Pin	Signal	Pin	Signal
1	/STB	2	/AUTOFD
3	DO	4	ERR
5	D1	6	/INIT
7	D2	8	/SLCTINI
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	/ACK	20	GND
21	BUST	22	GND
23	PE	24	GND
25	SLCT	26	N/C

Keyboard and Mouse Connector (CN11)

The MB-662 provides a keyboard connector which supports both a keyboard and a PS/2 style mouse. Please refer to the pin definitions listed below:

Keyboard and Mouse Connector (CN11), Dual mini-din connector			
Pin	Signal	Pin	Signal
1	KB DATA	7	MS DATA
2	MS DATA	8	N/C
3	GND	9	GND
4	Vcc	10	Vcc
5	KB CLOCK	11	MS CLOCK
6	MS CLOCK	12	N/C

CPU and System Fan Power Connector (CN13) and (CN24)

Two 3-pin plug in and error free onboard connectors are located accessibly for trouble-free connection and disconnection. For CPU fan it is labeled CN13 and CN24 for system fan. Both pin definitionsare listed below:

CPU Fan Power Connector (CN13)	
Pin	Signal
1	GND
2	+12V
3	fan speed sensor

System Fan Power Connector (CN24)	
Pin	Signal
1	GND
2	+12V
3	fan speed sensor

RJ-45 Ethernet Connector (CN14)

MB-662 is outfitted with a standard RJ-45 LAN connector. With support from Realtek RTL8139C chipset using either 10Mbs or 100Mbs are possible through it's N-way auto-negotiation featured operation. Refer to the pin definitions listed below:

RJ-45 Ethernet Connector (CN14)			
Pin	Signal	Pin	Signal
1	TX+	5	N/C
2	TX-	6	RX-
3	RX+	7	N/C
4	N/C	8	N/C

IDE Hard Drive Connectors
Primary IDE Hard Drive Connector (CN16)
Secondary IDE Hard Drive Connector (CN17)

You can attach up to four Enhanced Integrated Device Electronics hard disk drives to the mainboard's internal controller. The mainboard's IDE controller uses a PCI local-bus interface. This advance interface supports faster data transfer and allows the IDE hard drive to exceed 528 MB.

Connecting the hard drive

Connecting drives, their done in a daisy-chain fashion and requires one of the three cables, depending on the drive size. 1.8" and 2.5" drives need one 44-pin to two 44-pin flat cable connector. 3.5" drives use one 44-pin to two 40-pin connector.

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

1. Connect one end of the cable to CN16 or CN17. Make sure that the red (or blue) wire corresponds to pin 1 on the con- nector, which is marked and connectors are slotted.

2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drives. (see your hard drive's documentation for the location of the connector).

   Connect a second drive as described above.

   Unlike floppy drives, IDE hard drives can be connected to either end of the cable. The pin definitions for this section are listed on the next page.

Primary Hard Drive Connector (CN16)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	SIGNAL GND	20	N/C
21	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	ALE
29	N/C	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND
41	Vcc	42	MVcc
43	GND	44	N/C

Secondary IDE Hard Drive Connector (CN17)			
Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	SIGNAL GND	20	N/C
21	N/C	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO CHANNEL READY	28	ALE
29	N/C	30	GND
31	IRQ14	32	IOCS16
33	ADDR 1	34	N/C
35	ADDR 0	36	ADDR 2
37	HARD DISK SELECT 0	38	HARD DISK SELECT 1
39	IDE ACTIVE	40	MGND

Serial Port COM2 (CN22)

This port is also readily availiable for quick connect and disconnect of serial devices like mouse, printer and etc.. Pin definitions are listed as follows:

Pin	Signal	Pin	Signal
Serial Port COM2 RS-232 (CN22)			
1	NRLSD1	6	NDSR1
2	NRXD1	7	NRTS1
3	NTXD1	8	NCTS1
4	NDTR1	9	NRI1
5	GND	10	GND

LCD Inverter Backlight Power Connector (CN25)

CN25 enables power transmission when connected from the mainboard to the LCD panel for backlight lighting. Refer to the pin definitions below:

Pin	Signal
1	+5V ENB
2	N/C
3	N/C
4	GND
5	+12V ENB

Digital I/O Connector (CN29)

MB-662 offers digital I/O functions connector for easy access and link with digital devices. (Input 4031: GPI15 [bit7]; Input 4032: GPI17 [bit1], GPI18 [bit2], GPI19 [bit3]; Output 4036: GPO17 [bit1], GPO 18 [bit2], GPO19 [bit3], GPO20 [bit4]) The pin definitions are illustrated below:

Pin	Signal	Pin	Signal
1	DIO_IN1	2	DIO_IN2
3	DIO_IN3	4	DIO_IN4
5	DIO_OUT1	6	DIO_OUT2
7	DIO_OUT3	8	DIO_OUT4
9	Vcc	10	GND

Serial Port COM1 (CN32), COM3 (CN30) and COM4 (CN31) Connectors

The availability of this interface allows connection of serial devices such as mouse, printer, etc.. Pin definitions as follows:

COM3 RS-232 (CN30)			
Pin	Signal	Pin	Signal
1	NRLSD2	6	NCTS2
2	NDSR2	7	NDTR2
3	NRXD2	8	NRI2
4	NRTS2	9	GND
5	NTXD2	10	GND

COM1 (CN32)

Pin	Signal	Pin	Signal
COM1 RS-232 (CN32)			
Pin	Signal	Pin	Signal
1	DCDA	6	DSRA
2	RXDA	7	RTSA
3	TXDA	8	CTSA
4	DTRA	9	DTRA
5	GND	10	GND

COM4 (CN31)

Pin	Signal	Pin	Signal
COM4 RS-232/422/485 (CN31)			
Pin	Signal	Pin	Signal
1	DCDB	2	DSRB
3	RXDB	4	RTSB
5	TXDB	6	CTSB
7	DTRB	8	IRIB
9	GND	10	N/C
11	485TXD+	12	485TXD-
13	422RXD-	14	422RXD-

Joystick / MIDI Port (CN33)

MB-662 is equipped with a 4 in 1 connector and provides joystick / MIDI port. All designed for easy access to the users. Refer to the pin definitions below:

Joystick / MIDI Port Connector (CN33)			
Pin	Signal	Pin	Signal
1	Vcc	9	Vcc
2	JF0	10	JF2
3	JRC0	11	JRC2
4	GND	12	MOUT
5	GND	13	JRC3
6	JRC1	14	JF3
7	JF1	15	MIN
8	Vcc		

Audio Connector for CD_IN (CN34)

Links audio connection of the CD-ROM and the mainboard. By using a 4-pin wafer cable connector it could be installed without consuming much time. The pin definitions are listed below:

CD_IN Wafer Connector (CN34)	
Pin	Signal
1	CD_IN Left
2	GND
3	CD_IN Right
4	GND

Phone Jack for Line_OUT (CN35)

Line_OUT phone jack is provided for the comfort and convenience of the users. Giving a standard form of connection for the users too. Pin definitions as follows:

Line_OUT Phone Jack (CN35)	
Pin	Signal
1	GND
2	Line_OUT Left
3	GND
4	GND
5	Line_OUT Right

Phone Jack for MIC (CN36)

A standard phone jack is also provided for the users ease and convenience. The pin definitions are listed below:

MIC Phone Jack (CN36)	
Pin	Signal
1	GND
2	N/C
3	GND
4	GND
5	MIC_IN

Phone Jack for Line_IN (CN37)

The MB-662 is designed with line_OUT and for additional ease a line_IN connection is definitely needed. It also comes with standard easy connection. Pin definitions below:

Line_IN Phone Jack (CN37)	
Pin	Signal
1	GND
2	Line_IN Left
3	GND
4	GND
5	Line_IN Right