Quick Start Guide

Viglen Product Description: Intel D955XBK Motherboard
Viglen Order Code: PMPBK001
Viglen System: Genie Pro(S775)

- **Product photo**

Product specification.

Motherboard Form Factor	D955XBK: ATX (12.0 inches by 9.60 inches [304.80 millimetres by 243.84 millimetres])				
Motherboard chipset	Intel® 955X Chipset, consisting of: . Intel® 82955X Memory Controller Hub (MCH) . Intel® 82801GR I/O Controller Hub (ICH7-R) . Firmware Hub (FWH) or Serial Interface (SPI) Flash device				
CPU connector type	LGA775 socket				
Number of CPUs supported	1				
Supported CPU types (C, P3 or P4 etc)	Pentium 4 and Pentium 4 Extreme Edition (EE)				
Supported CPU speeds	CPU No.	CPU speed	FSB	L2 cache	L3 cache
	840 EE	3.20 GHz	800MHz	2 x 1 MB	-
	800 -840	2.80 - 3.20 GHz	800 MHz	2 x 1 MB	-
	EE	3.40 GHz	1066 MHz	512 KB	2 MB
	620-670	2.80 - 3.80 GHz	800 MHz	2 MB	-
	520-570	2.80 - 3.80 GHz	800 MHz	1 MB	-
Front side bus speed	1066MHz and 800MHz				
Number of PCI slots	3				
PCI slot speeds	33MHz				
Number of PCI-E slots	1 x PCI-e x16 and 1 x PCI-e x16/x4 and 1 x PCIe x 1				
On board video	No				
Onboard audio type	Intel High Definition Audio subsystem in one of the following configurations: • 8-channel (7.1) audio subsystem with five analogue audio outputs and two S/PDIF digital audio outputs (coaxial and optical) using the Sigmatel 9221 audio codec				
Front facing audio header	Yes				
Audio Upgradeable	via PCI/PCI-E				
Onboard network fitted	Gigabit (10/100/1000 Mbits/sec) LAN subsystem using the Intel® 82573E/82573V/82574V Gigabit Ethernet Controller				
Number of network connections	1				
Upgradeable?	Via PCI or PCI-E				
Number of IDE channels	1				
Number of SATA channels	8 (4 x SATA300 Intel RAID ICH7-R [RAID 0, 1, 0+1 and 5]) and (4 x SATA150 Silcon Image RAID Sil 3114 [RAID 0,1 and 0+1])				
Maximum number of disks	6 (2 x IDE 2 x SATA) this would require full height ATX case				

Rear I/O connectors	4 x USB 2	1 x MIC
	Note 2 x USB 2 front headers (2 ports per header)	1 x audio out
	1 x serial	1 x audio in
	1 x parallel	1 x PS2 mouse
	1 x RJ45 LAN	1 x PS2 keyboard
	1 x IEEE1394 (plus two onboard front headers for an additional ports IEEE1394a or b configurable in BIOS)	

Memory type	240-pin DDR2 SDRAM DIMM sockets DDR2 533 and DDR2 667
Number of memory sockets	Four 240-pin DDR2 SDRAM DIMM sockets
Maximum memory support	Support for up to 8 GB of system memory
Supported memory speed	DDR 2 533 and DDR2 667
MTBF	91,425.23 hours

Upgrading and ESD precautions

WARNING

Unplug the system before carrying out the procedures described in this document. Failure to disconnect power before you open the system can result in personal injury or equipment damage. Hazardous voltage, current, and energy levels are present in this product. Power switch terminals can have hazardous Voltages present even when the power switch is off.

The procedures assume familiarity with the general terminology associated with personal computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.

Do not operate the system with the cover removed. Always replace the cover before turning on the system.

As the colours of the wires in the mains lead of this computer may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter **E** or by the safety Earth symbol Ω or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter **N** or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter **L** or coloured red.
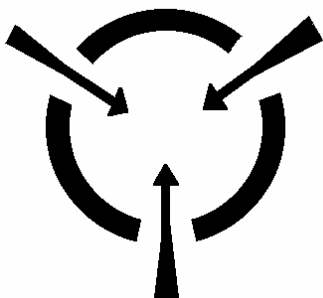
<u>**CAUTION!**</u>
The Viglen D955XBK motherboard and associated components are sensitive electronic devices. A small static shock from your body can cause expensive damage to your equipment.

Make sure you are earthed and free of static charge before you open the computer case. If you are unsure about upgrading your computer, return it to Viglen so a qualified engineer can perform the upgrade.

STEPS TO TAKE TO PREVENT STATIC DISCHARGE:

1. The best way to prevent static discharge is to buy an anti-static strap from your local electrical shop. While you are wearing the strap and it is earthed, static charge will be harmlessly bled to ground.

2. Do not remove the component from its anti-static protective packaging until you are about to install it.

3. Hold boards by the edges - try not to touch components / interface strips etc.

Note:
We recommend that you return your computer to the service department for upgrading. Any work carried out is fully guaranteed. Upgrades should only be carried out by persons who are familiar with handling IC's, as incorrect installation will invalidate the guarantee.
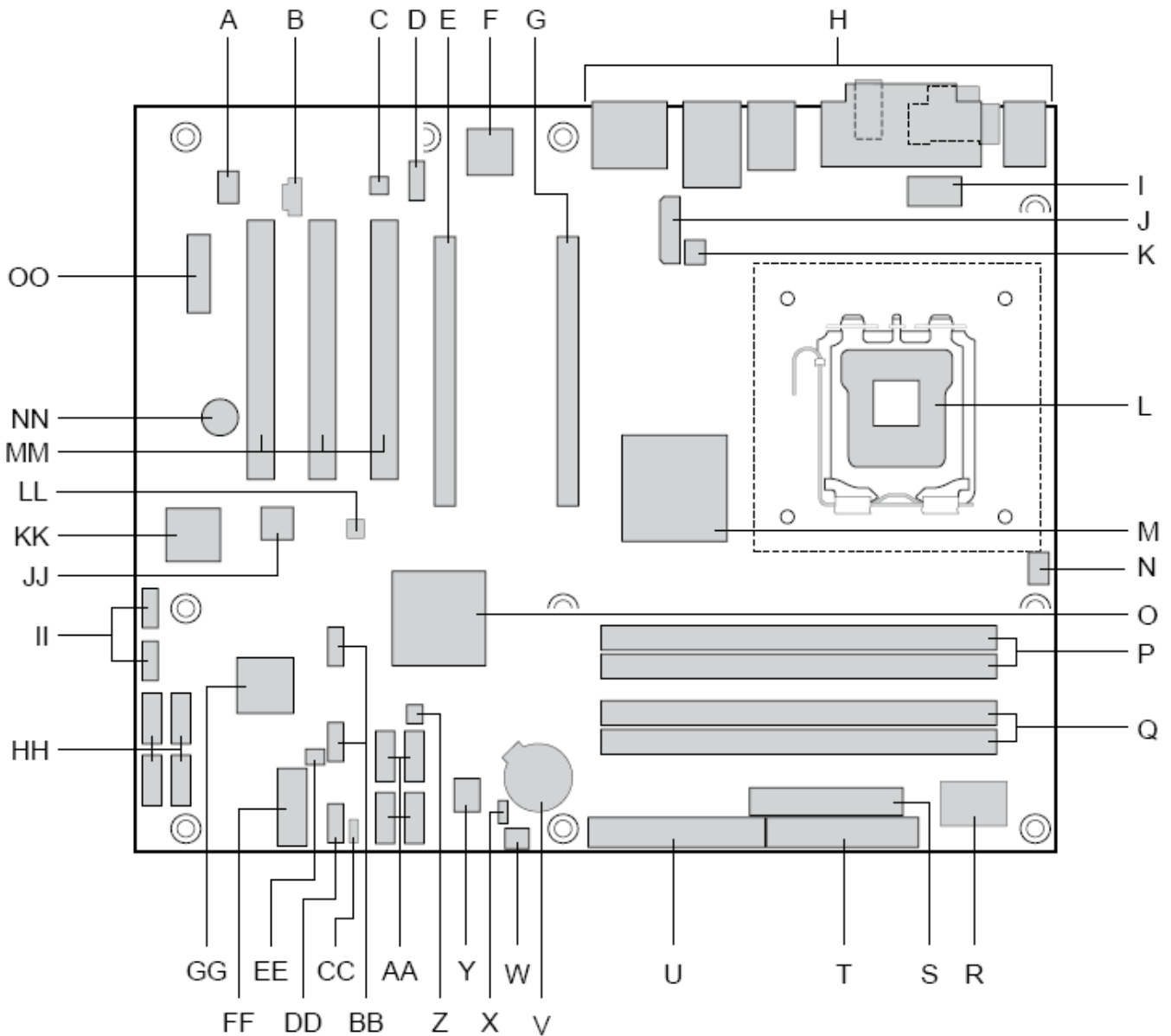
• System Board Components

Figure 1 Motherboard Layout & Components

Table 2.

A	Auxiliary rear fan connector	V	Battery
B	CDROM ATAPI audio connector (not fitted)	W	Front chassis fan connector
C	Sigmatel audio codec 9221	X	BIOS Setup configuration jumper block
D	Front panel audio connector	Y	Firmware Hub (FWH)
E	Secondary PCI Express connectorx16/x4	Z	Chassis intrusion connector
F	Intel Giga bit Ethernet controller	AA	SATA RAID connectors Intel ICH7-R
G	PCI Express x16 bus add-in card connector	BB	Front panel USB connectors
H	Back panel connectors	CC	Auxiliary front panel power LED connector
I	+12V power connector (ATX12V) 4/8 way	DD	Front panel connector
J	Alternate power connector (not used)	EE	SCSI LED connector (optional)
K	Rear chassis fan connector	FF	Auxiliary power connector (not to be used to power HDD's optical drive's etc
L	LGA775 processor socket	GG	SATA RAID controller Silicon Image
M	Intel 82955X MCH	HH	SATA RAID connectors Silicon Image
N	Processor fan connector	II	IEEE-1394a/b front panel connectors
O	Intel 82801GR I/O Controller Hub (ICH7-R)	JJ	IEEE-1394a/b PHY component
P	DIMM Channel A sockets	KK	IEEE-1394a/b Link component

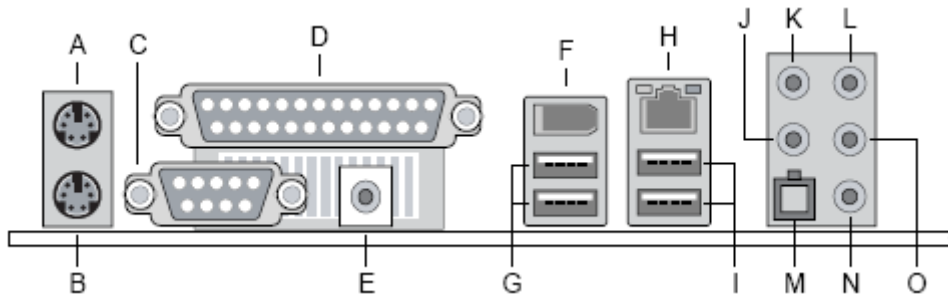|			
Q	DIMM Channel B sockets	LL	SPI Flash device
R	I/O controller	MM	PCI Conventional bus add-in card connectors
S	Power connector (24 way ATX2.2)	NN	Speaker
T	Diskette drive connector	OO	PCI Express x1 bus add-in card connectors
U	Parallel ATE IDE connector		

Back Panel Connectors 7.1 Sigmatel audio 9221

Figure 2. Back Panel Connectors.

Table 3.

Item	Description	Item	Description
A	PS/2* mouse port (Green)	I	USB ports (two)
B	PS/2 keyboard port (Purple)	J	Center channel and LFE (subwoofer) audio out/ Retasking Jack G [Orange]
C	Serial port A (Teal)	K	Surround left/right channel audio out/Retasking Jack H [Black]
D	Parallel port (Burgundy)	L	Audio line in/Retasking Jack C [Blue]
E	Digital audio out coaxial	M	Digital audio out optical
F	IEEE-1394a connector	N	Mic in/Retasking Jack B [Pink]
G	USB ports (two)	O	Front left/right channel audio out/Two channel audio line out/Retasking Jack D [Lime green]
H	LAN	-	-

Note: The back panel audio line out connector is designed to power headphones or amplified speakers only. Poor audio quality occurs if passive (non-amplified) speakers are connected to this output.

• Front panel connections

The following are all connectors situated along the front edge of the motherboard. They are often connected to buttons and LED's situated on the front panel.
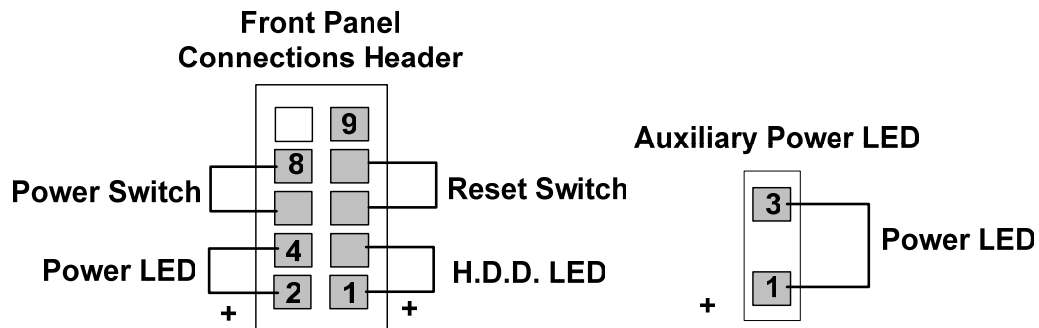
Figure 3. Front panel connectors

A- Hard Disk L.E.D. Connector

This goes to the Hard Disk L.E.D. on the front panel, which lights up when the IDE Hard Disk is in use.

B - Reset switch connector

When these pins are shorted, it will cause the computer to perform a cold reboot.

C - Power L.E.D.

This attaches to the power L.E.D on the front panel, to display if the computer is active or not.

D- Power On/Off

When these pins are shorted it turns the computer on and off.

• Motherboard Connectors

There are connectors on the motherboard for FAN, IDE, Power supply, CD audio, Floppy, IDE, & Front Panel Connectors. The location and/or details of these connections are shown below.
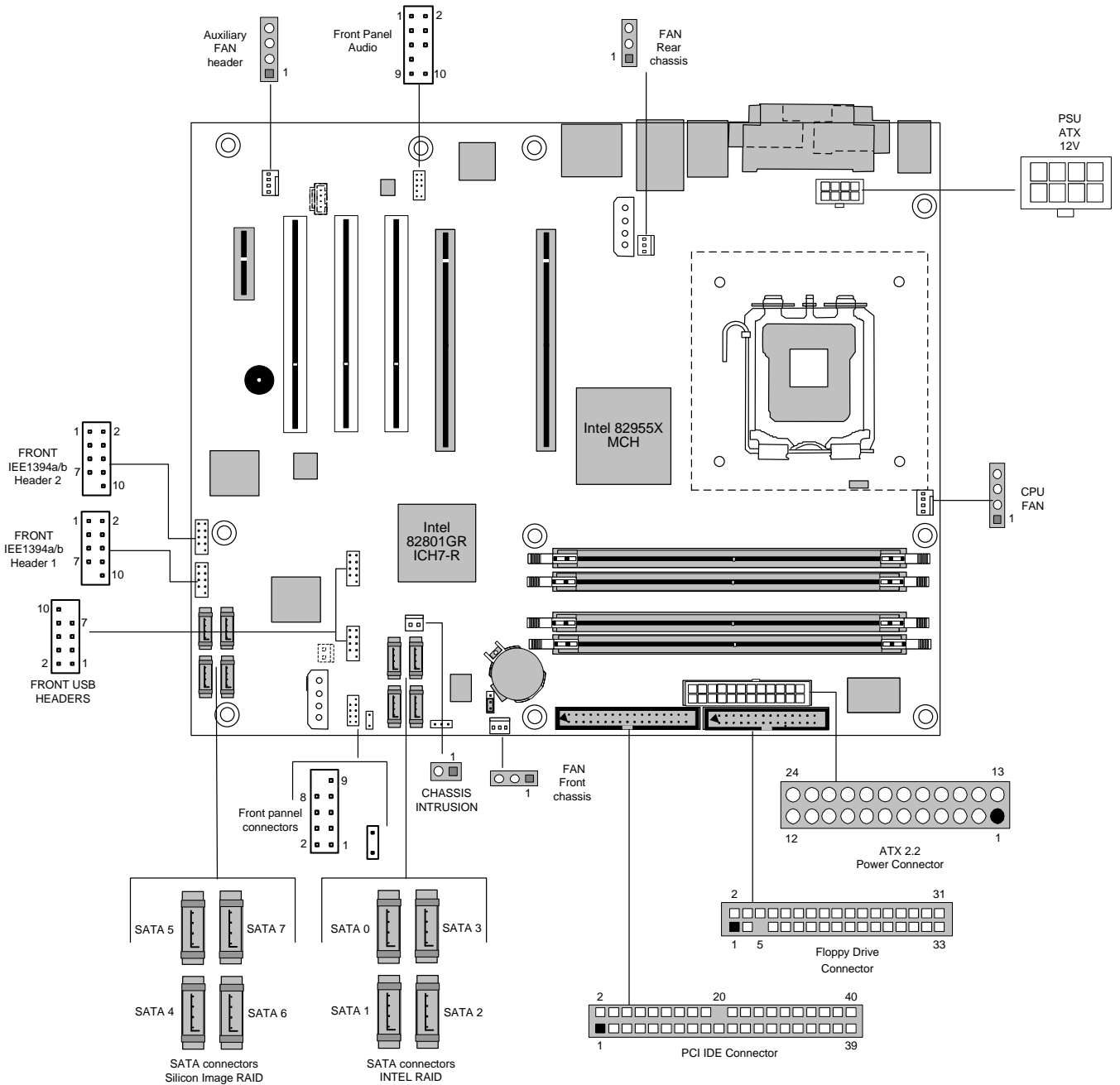

Figure 4. Motherboard Connectors

Note: Intel RAID 4 x SATA 300 connections will be used by default and then the additional SATA 150 connections as necessary.

- **Jumper settings**

CAUTION Do not move any jumpers with the power on. Always turn off the power and unplug the power cord from the computer before changing a jumper setting. Otherwise, the board could be damaged.
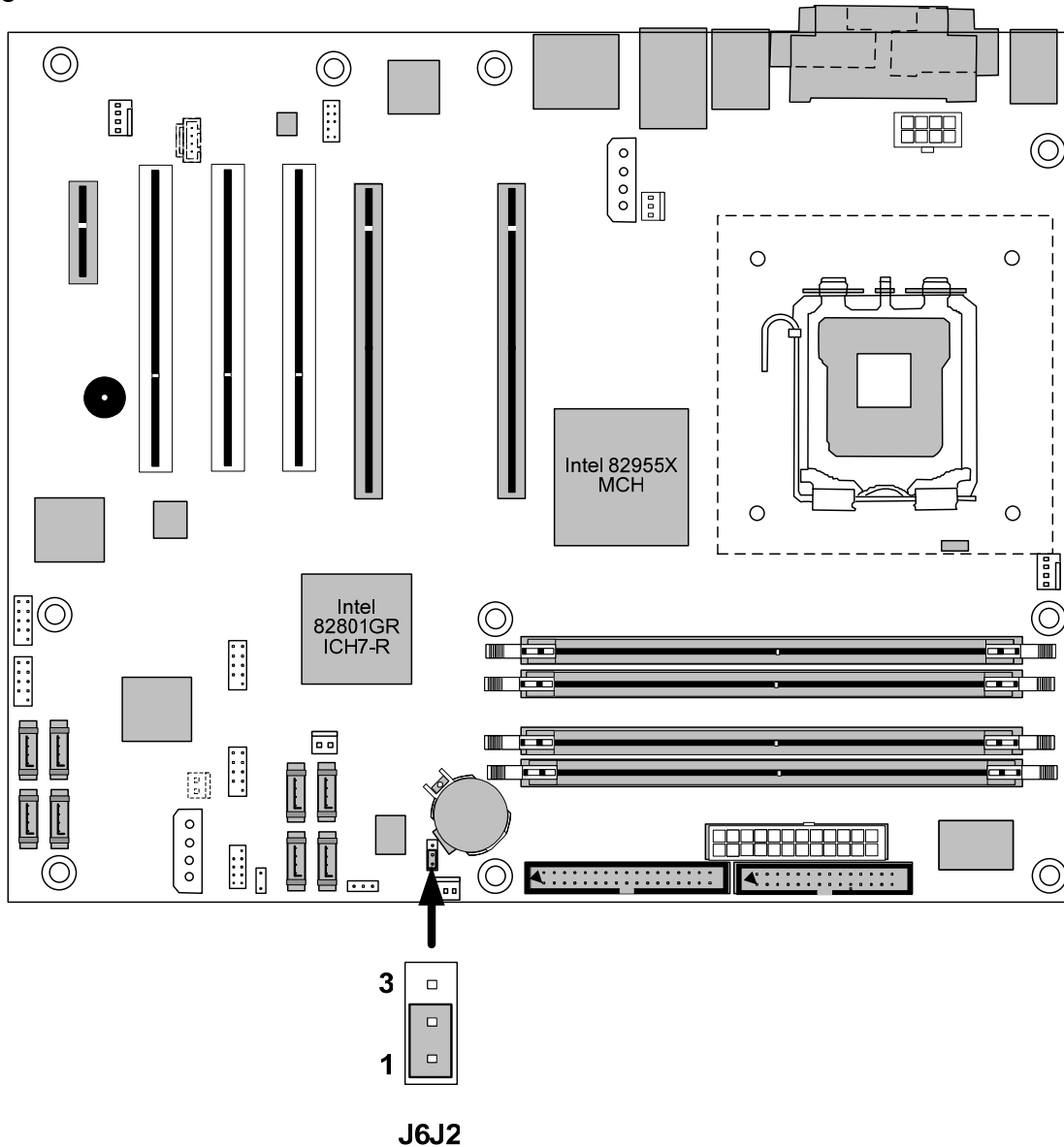

3 □
1 □

J6J2

Figure 5. Motherboard jumper.

BIOS Setup Configuration Jumper (J6J2) Settings

The 3-pin jumper block determines the BIOS Setup program's mode. The table below describes the jumper settings for the three modes: normal, configure, and recovery. When the jumper is set to configure mode and the computer is powered-up, the BIOS compares the processor version and the microcode version in the BIOS and reports if the two match.

Table 4.

Function/Mode	Jumper Setting	Configuration
Normal	1-2	The BIOS uses current configuration information and passwords for booting.
Configure	2-3	After the POST runs, Setup runs automatically. The maintenance menu is displayed.
Recovery	None	The BIOS attempts to recover the BIOS configuration. A recovery diskette is required.

System Memory

The boards have four DIMM sockets and support the following memory features:

- 1.8 V and 1.9V DDR2 SDRAM DIMMs with gold-plated contacts.
- Unbuffered, single-sided or double-sided DIMMs with the following restriction: Double-sided DIMMS with x16 organization are not supported.
- 8 GB maximum total system memory total amount of addressable memory.
- Minimum total system memory: 128 MB
- ECC and Non-ECC DIMMs
- Serial Presence Detect
- DDR2 667 MHz or DDR2 533 MHz SDRAM DIMMs

NOTES

- Remove the PCI Express x16 video card before installing or upgrading memory to avoid interference with the memory retention mechanism.
- To be fully compliant with all applicable DDR SDRAM memory specifications, the board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. This allows the BIOS to read the SPD data and program the chipset to accurately configure memory settings for optimum performance. If non-SPD memory is installed, the BIOS will attempt to correctly configure the memory settings, but performance and reliability may be impacted or the DIMMs may not function under the determined frequency.

The following table lists the supported DIMM configurations.

Table 6.

DIMM Capacity	Configuration	SDRAM Density	SDRAM Organization Front-side/Back-side	Number of SDRAM Devices
128 MB	SS	256 Mbit	16 M x 16/empty	4
256 MB	SS	256 Mbit	32 M x 8/empty	8
256 MB	SS	512 Mbit	32 M x 16/empty	4
512 MB	DS	256 Mbit	32 M x 8/32 M x 8	16
512 MB	SS	512 Mbit	64 M x 8/empty	8
512 MB	SS	1 Gbit	64 M x 16/empty	4
1024 MB	DS	512 Mbit	64 M x 8/64 M x 8	16
1024 MB	SS	1 Gbit	128 M x 8/empty	8
2048 MB	DS	1 Gbit	128 M x 8/128 M x 8	16

Note: In the second column, "DS" refers to double-sided memory modules (containing two rows of DDR SDRAM) and "SS" refers to single-sided memory modules (containing one row of DDR SDRAM).

- **Memory Configurations**

The Intel 82955X MCH supports two types of memory organization:

• **Dual channel (Interleaved) mode**. This mode offers the highest throughput for real world applications. Dual channel mode is enabled when the installed memory capacities of both DIMM channels are equal. Technology and device width can vary from one channel to the other but the installed memory capacity for each channel must be equal. If different speed DIMMs are used between channels, the slowest memory timing will be used.

• **Single channel (Asymmetric) mode**. This mode is equivalent to single channel bandwidth operation for real world applications. This mode is used when only a single DIMM is installed or the memory capacities are unequal. Technology and device width can vary from one channel to the other. If different speed DIMMs are used between channels, the slowest memory timing will be used.

NOTE
The DIMM0 sockets of both channels are blue. The DIMM1 sockets of both channels are black.
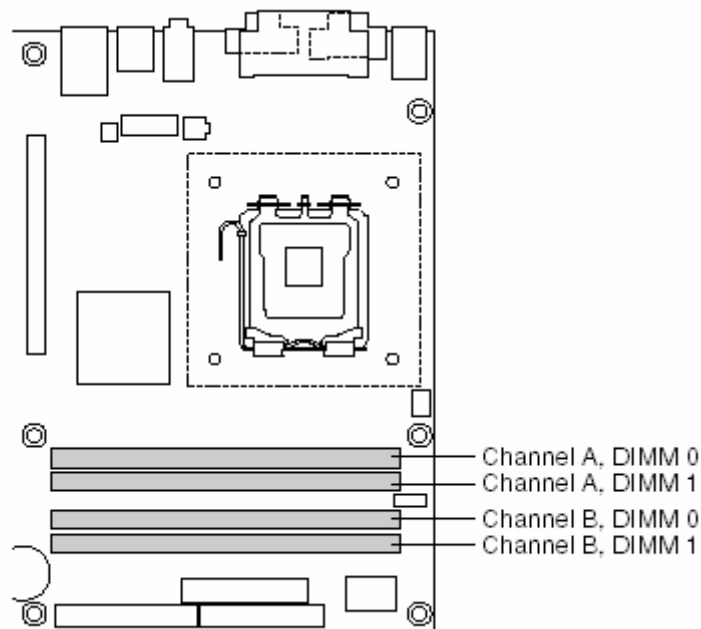

Figure 6. Memory Channel and DIMM Configuration

Dual Channel (Interleaved) Mode Configurations

Figure 7 shows a dual channel configuration using two DIMMs. In this example, the DIMM0 (blue) sockets of both channels are populated with identical DIMMs.

Figure 7. Dual Channel (Interleaved) Mode Configuration with Two DIMMs

Figure 8 shows a dual channel configuration using three DIMMs. In this example, the combined capacity of the two DIMMs in Channel A equal the capacity of the single DIMM in the DIMM0 (blue) socket of Channel B.
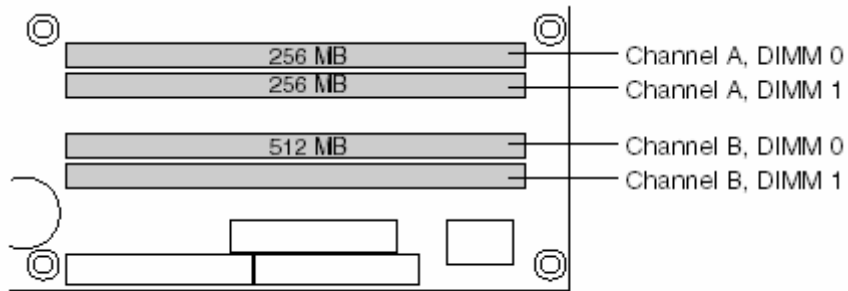

Figure 8. Dual Channel (Interleaved) Mode Configuration with Three DIMMs

Figure 9 shows a dual channel configuration using four DIMMs. In this example, the combined capacity of the two DIMMs in Channel A equal the combined capacity of the two DIMMs in Channel B. Also, the DIMMs are matched between DIMM0 and DIMM1 of both channels.
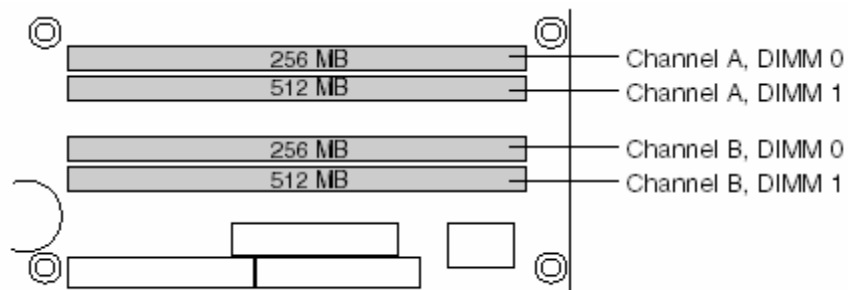

Figure 9. Dual Channel (Interleaved) Mode Configuration with Four DIMMs

Single Channel (Asymmetric) Mode Configurations

NOTE
Dual channel (Interleaved) mode configurations provide the highest memory throughput.
Figure 10 shows a single channel configuration using one DIMM. In this example, only the DIMM0 (blue) socket of Channel A is populated. Channel B is not populated.
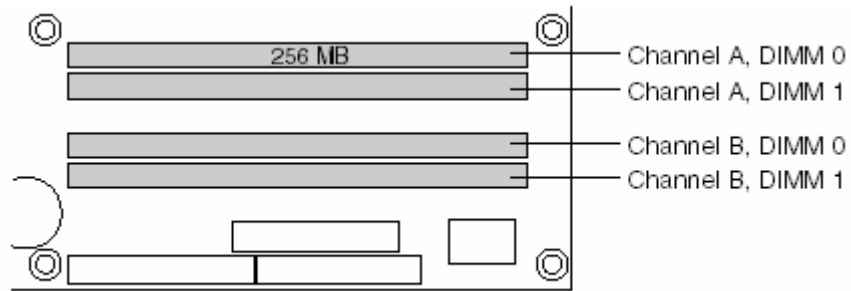

Figure 10. Single Channel (Asymmetric) Mode Configuration with One DIMM

Figure 11 shows a single channel configuration using three DIMMs. In this example, the combined capacity of the two DIMMs in Channel A does not equal the capacity of the single DIMM in the DIMM0 (blue) socket of Channel B.

Figure 11. Single Channel (Asymmetric) Mode Configuration with Three DIMMs

Installing & Removing DDR2 SDRAM In-line Memory Modules (DIMMs)

Installing Memory

You can install from 128MB to 8GB of memory in the motherboard DIMM sockets.

The board has four 240-pin DDR2 SDRAM DIMM sockets.

The motherboard supports the following memory features:

- 240-pin DIMMs with gold-plated contacts.
- 1.8 V and 1.9V DDR2 SDRAM DIMMs with gold-plated contacts
- ECC (72-bit) and Non-ECC (64-bit).
- 128MB, 256MB, 512MB, 1GB and 2GB modules.

When adding memory, follow these guidelines:
- The BIOS detects the size and type of installed memory.

Note:

DDR SDRAM's must meet the Version 1.0 June 2000 JEDEC Solid State Technology Association specifications for DDR200/266 SDRAM.

To install DIMMs, follow these steps:

1. Observe the precautions in "Upgrading and ESD precautions". Turn off the computer and all peripheral devices.
2. Remove the computer cover and locate the DIMM sockets.
3. Holding the DIMM by the edges, remove it from its antistatic package.
4. Make sure the clips at either end of the socket are pushed away from the socket.
5. Position the DIMM above the socket. Align the two small notches in the bottom edge of the DIMM with the keys in the socket. Insert the bottom edge of the DIMM into the socket.
6. When the DIMM is seated, push down on the top edge of the DIMM until the retaining clips at the ends of the socket snap into place. Make sure the clips are firmly in place.
7. Replace the computer cover.

Removing Memory

To remove a DIMM, follow these steps:

1. Observe the precautions in " Upgrading and ESD precautions".
2. Turn off all peripheral devices connected to the computer. Turn off the computer.
3. Remove the computer cover.
4. Gently spread the retaining clips at each end of the socket. The DIMM pops out of the socket. Hold the DIMM by the edges, lift it away from the socket, and store it in an antistatic package.
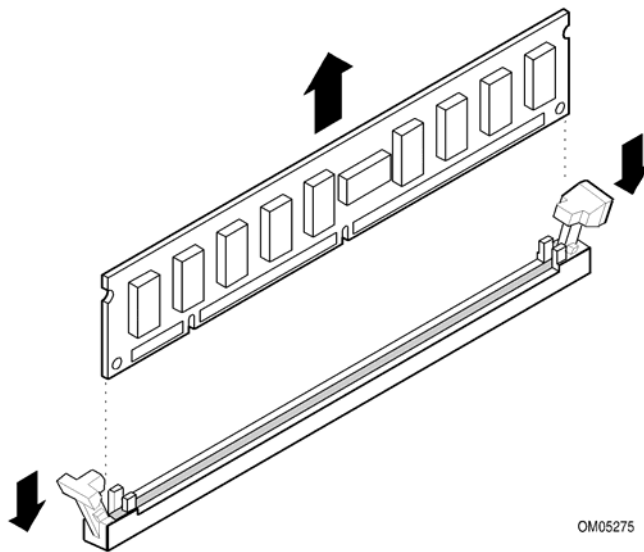5. Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets.

OM05275

Figure. 11. Removing DIMMs

Intel Serial ATA RAID

The ICH7-R supports the following RAID (Redundant Array of Independent Drives) levels:

- **RAID 0** - data striping. Multiple physical drives can be teamed together to create one logical drive. As data is written or retrieved from the logical drive, both drives operate in   parallel, thus increasing the throughput. The ICH7-R allows for more than two drives to be used in a RAID 0 configuration.
- **RAID 1** - data mirroring. Multiple physical drives maintain duplicate sets of all data on separate disk drives. Level 1 provides the highest data reliability because two complete copies of all information are maintained. The ICH7-R allows for two or four drives to be used in a RAID 1 configuration.
- **RAID 0+1 (or RAID 10)** - data striping and mirroring. RAID 0+1 combines multiple mirrored drives (RAID 1) with data striping (RAID 0) into a single array. This provides the highest performance with data protection. Data is striped across all mirrored sets. RAID 0+1 utilizes several drives to stripe data (increased performance) and then makes a copy of the striped drives to provide redundancy. The mirrored disks eliminate the overhead and delay of parity.
- **RAID 5** - distributed parity. RAID Level 5 stripes data at a block level across several drives and distributes parity among the drives; no single disk is devoted to parity. Because parity data is distributed on each drive, read performance tends to be lower than other RAID types. RAID 5 requires the use of three or four drives.

Discrete Serial ATA Interface (Optional)

As a manufacturing option, the board provides a Silicon Image Sil 3114 Serial ATA (SATA) controller and four connectors (that support one device per connector) for SATA devices. These connectors are in addition to the four SATA connectors of the ICH7-R SATA interface.
The Sil 3114 controller uses the PCI bus for data transfer and provides a maximum data transfer rate of up to 1.5 Gbits/sec. The discrete SATA interface supports the following RAID levels:
- RAID 0
- RAID 1
- RAID 0+1

PCI Express Connectors

The board provides the following PCI Express connectors:

- One PCI Express x16 connector. The x16 interface supports simultaneous (full duplex) transfers up to 8 GBytes/sec. Single-ended (half duplex) transfers are supported at up to 4 GBytes/sec.
- One Secondary PCI Express x16/x4 bus add-in card connector: The board provides a PCI Express add-in card connector in the form of a physical x16 connector with electrical routing of
x4. It is important to note that this connector is an electrical equivalent of a PCI Express x4 bus
add-in card connector. This connector supports x4 and x1 PCI Express add-in cards.
- One PCI Express x1 connector. The x1 interface supports simultaneous transfers up to 500 MBytes/sec.

BIOS Initial Release.

BK95510J.86A.1784

Drivers initial release

Windows 98SE, Windows ME, Windows NT4 Drivers are all not supported

Windows 2000 Drivers

Audio: Sigmatel 9220/9221	5.10.4455.0	4.16 MB	10 May 2005
INF: Intel® Chipset Software Installation Utility	7.0.0.1025	789 KB	27 May 2005
LAN: Intel® PRO Network Connections	10.0	15.7 MB	3 May 2005
RAID Intel Manager + F6 driver disk	5.0.0.1032	17.7MB	06 June 2005
RAID Silicon Image + F6 driver disk	4.0.100.1190	15.1MB	06 June 2005

Windows XP Drivers

Audio: Sigmatel 9220/9221	5.10.4487.0	14.1 MB	10 May 2005
INF: Intel® Chipset Software Installation Utility	7.0.0.1025	789 KB	27 May 2005
LAN: Intel® PRO Network Connections	10.0	15.7 MB	3 May 2005
RAID Intel Manager + F6 driver disk	5.0.0.1032	17.7MB	06 June 2005
RAID Silicon Image + F6 driver disk	4.0.100.1190	15.1MB	06 June 2005

Windows XP Professional x64 Edition Drivers

Audio: Sigmatel 9220/9221	5.10.4487.0	14.1 MB	10 May 2005
INF: Intel® Chipset Software Installation Utility	7.0.0.1025	789 KB	27 May 2005
LAN: Intel® PRO Network Connections	10.0	15.7 MB	3 May 2005
RAID Intel Manager + F6 driver disk	5.0.0.1032	17.7MB	06 June 2005
RAID Silicon Image + F6 driver disk	1.2.3.1	15.9MB	31 August 2005

Note:- All the above drivers are PC99 certified.