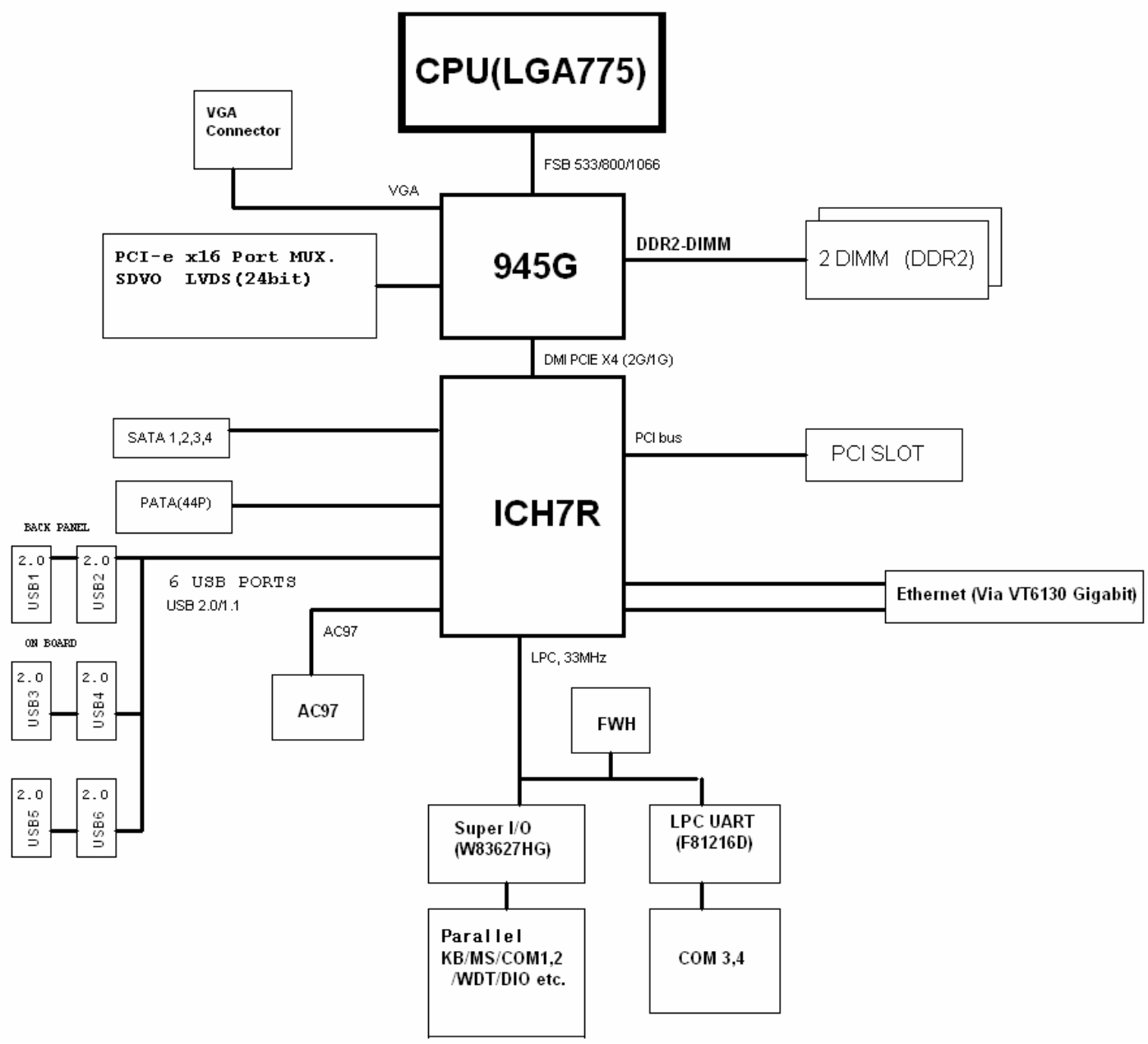
- 목 차 -

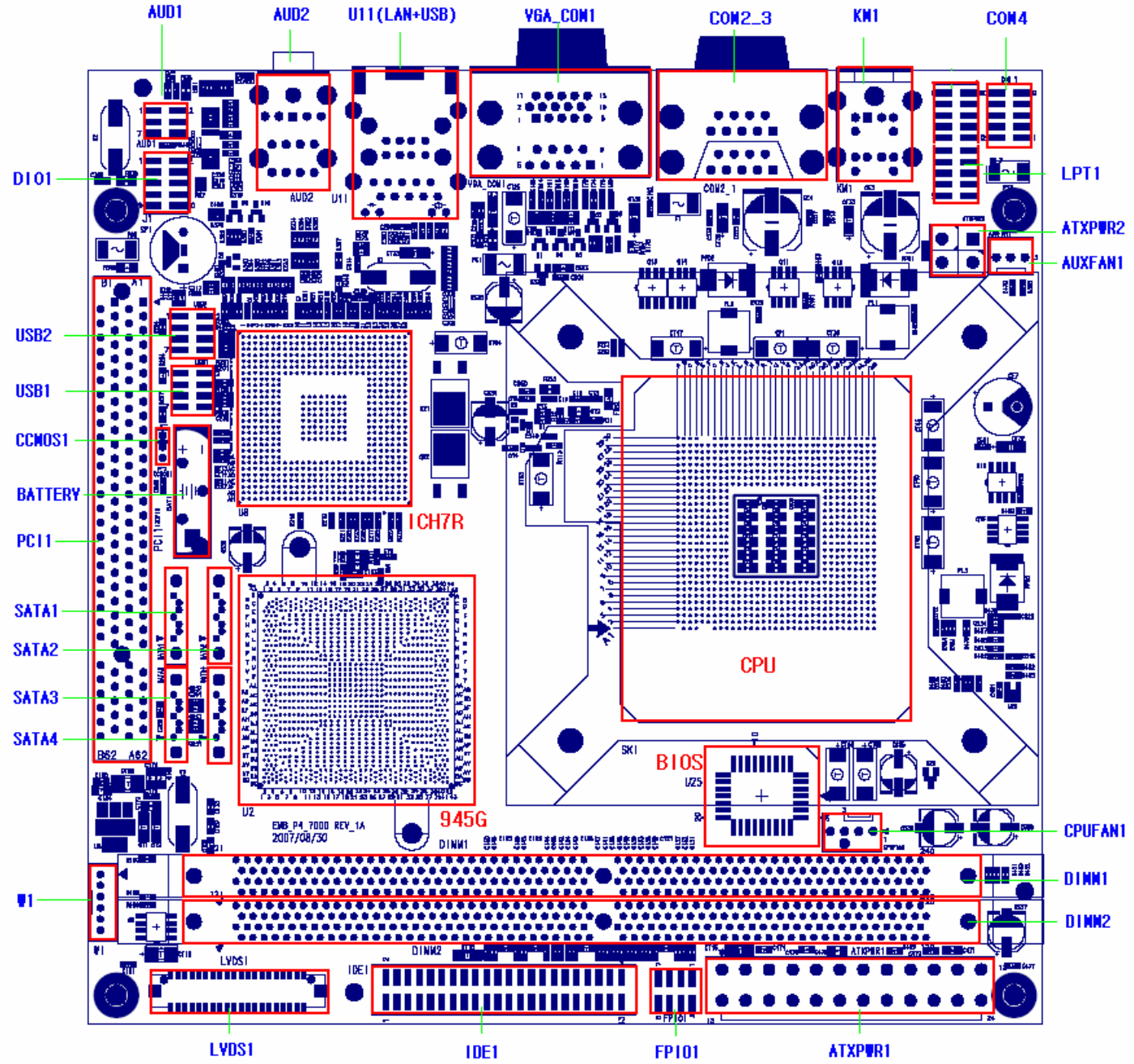
# 1. SPECIFICATIONS

| | |
|---|---|
| Processor | Intel Core2 Duo(Wolfdale FSB1066),Intel Pentium-D(dual Core), Pentium 4 Processor |
| | LGA775 Package |
| Main Chipset | Intel 945G, 1066MT/s FSB, Memory Controller upto DDR2 667,<br>GMA 950 Graphics controller using Core Frequency 400MHz, CRT Port,<br>PCI-e x16 Graphics Port multiplexed with 2 SDVO port for LVDS/TV/DVI,<br>DMI interface with ICH7R, 34mm x 34mm, 1202 FCBGA Package |
| | Intel ICH7R, 4 PCI-e interface, 6 PCI interface, LPC interface, 4 SATA II 3Gb/s interface, 1 PATA IDE interface, 8 USB 2.0 ports, 31mm x 31mm 652 mBGA Package |
| Graphics | GMA950, Integrated 2D/3D Graphics Controller in 945G, |
| | Dynamic Frame Buffer size on System Memory, max 224MB |
| | 24bit LVDS port using 1 SDVO interface port |
| Memory | 2 240 pin DDR2 DIMM Socket [Support upto DDR2 667, upto 4GB] |
| Ethernet | 1 Gigabit Ethernet Ports [RJ45],Via VT6130 Gigabit ethernet Controller, WOL |
| | PCI-e interface, 64P QFN |
| Super I/O | W83627HF,Winbond, Super I/O with 2 Serial Port, LPC interface |
| | F81216, Fintek, Secondary SIO with 4 Serial Port, LPC interface |
| | PS/2 bus K/B, Mouse Port 지원, 2 Serial Port [COM1,2] |
| | WDT, H/W monitoring, DIO 8 bit |
| Audio | AC' 97 |
| IDE | Primary, UDMA 66, 100 IDE interface |
| | Support 1 PATA / 2 SATA II interface for 3 Gb/s |
| Expansion | 1 x PCI Slot [with 2 master REQ/GNTs] |
| Back Panel I/O | 1 x CRT Port, |
| | 3 x Serial port, COM1,2,3 |
| | 1 x Ethernet port, |
| | 2 x USB 2.0/1.1 ports, |
| | 1 x Audio Jack, |
| | 1 x PS2 K/B, Mouse Port |
| On Board I/O Connectors | 2 x 5 PIN 1 x Serial Port [COM 4], 1 x 20 PIN 1 x Parallel |
| | 1 x 44 pin Header, 1 x IDE Connector |
| | 4 x 8 pin Straight connector, 4 x SATA Ports |
| | 2 x 5 pin Header, 4 x USB ports |
| | 2 x 3 pin Fan connector, CPU + System |
| | 1 x 40 pin 24bit LVDS port,1 x 6 Backlight Voltage Select (Option) |
| | 2 x 5 pin Header, 8 bit DIO port |
| BIOS | Phoenix/Award BIOS |
| Power | 24 Pin + 4 pin ATX |
| Form Factor | Mini-ITX Form Factor, size 170mm x 170mm, 8 Layers |
| Operating Temp | 0 to 60°C |

## 2. BLOCK DIAGRAM



## 3. LAYOUT

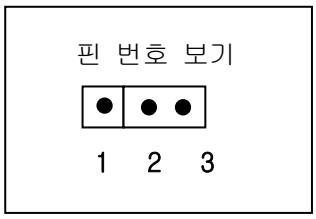

AUD1
AUD2
U11(LAN+USB)
VGA_CON1
COM2_3
KM1
COM4
DIO1
LPT1
ATXPWR2
AUXFAN1
USB2
USB1
CCMOS1
BATTERY
PCI1
ICH7R
SATA1
SATA2
SATA3
SATA4
CPU
BIOS
945G
CPUFAN1
DIMM1
DIMM2
W1
LVDS1
IDE1
FPIO1
ATXPWR1

# 4. INSTALLATION & DESCRIPTION

## 4.1 JUMPER INSTALLATION

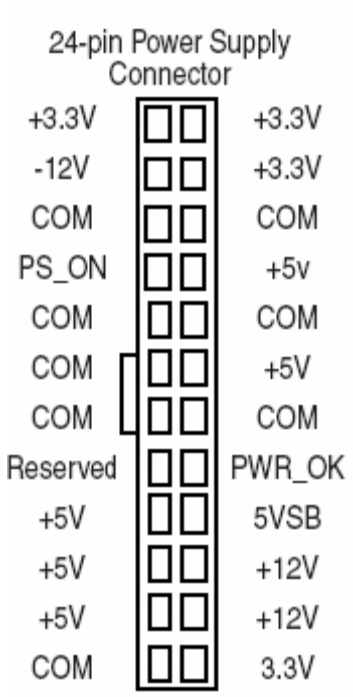
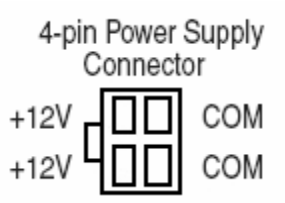
### 4.1.1 BATTERY SELECTABLE CONNECTOR [CCMOS1]

| PIN | SIGNAL | DESCRIPTION |
|---|---|---|
| 1 | IBAT | ON-BOARD Battery used (1-2) |
| 2 | VBATT | External or Internal Battery Common pin |
| 3 | GND | CMOS Clear (2-3) |




## 4.2 CONNECTOR DESCRIPTION

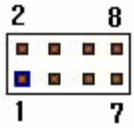
### 4.2.1 ATX POWER CONNECTION [AXTPWR1, ATXPWR2]

| ATXPWR1 | ATXPWR2 |
|---|---|
|  |  |



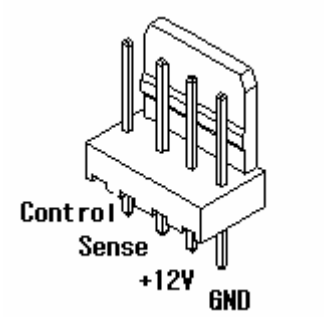
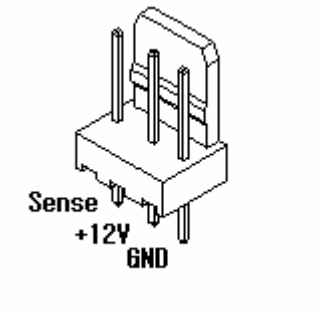


### 4.2.2 POWER, RESET S/W CONNECTOR [FPIO1]

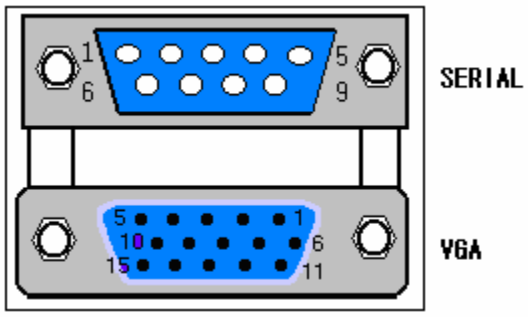



| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | HD_LED | 2 | SP_LED |
| 3 | HD_LED# | 4 | SP_LED# |
| 5 | RESET S/W_GND | 6 | PSON S/W |
| 7 | RESET S/W | 8 | PS_ON# |

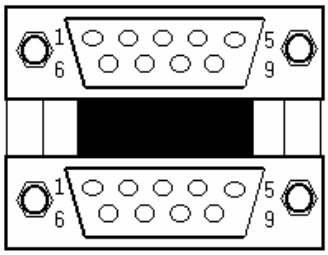
### 4.2.3 FAN CONNECTION [CPUFAN1, AUXFAN1]

| CPUFAN1 | AUXFAN1 |
|---|---|
|  |  |

### 4.2.4 VGA+COM1 CONNECTOR [VGA_COM1]

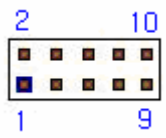
| COM | PIN | VGA |
|---|---|---|
| DCD(Data Carrier Detect) | 1 | Red |
| SIN(Serial Input) | 2 | Green |
| SOUT(Serial Output) | 3 | Blue |
| DTR(Data Terminal Ready) | 4 | NC |
| GND | 5 | GND |
| DSR(Data Set Ready) | 6 | Frame GND |
| RTS(Request To Send) | 7 | Frame GND |
| CTS(Clear To Send) | 8 | Frame GND |
| RI(Ring Indicator) | 9 | +5V |
|  | 10 | GND |
| | 11 | NC |
| | 12 | I2C Clk |
| | 13 | H-sync |
| | 14 | V-Sync |
| | 15 | I2C Data |

### 4.2.5 COM2+COM3 CONNECTOR [COM2_3]



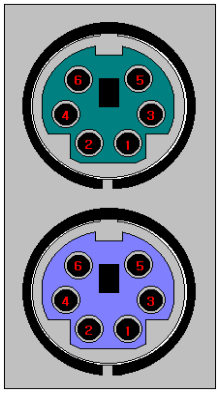

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | DCD(Data Carrier Detect) | 2 | SIN(Serial Input) |
| 3 | SOUT(Serial Output) | 4 | DTR(Data Terminal Ready) |
| 5 | GND | 6 | DSR(Data Set Ready) |
| 7 | RTS(Request To Send) | 8 | CTS(Clear To Send) |
| 9 | RI(Ring Indicator) | 10 | |

### 4.2.6 RS-232 SERIAL INTERFACE CONNECTOR [COM4]



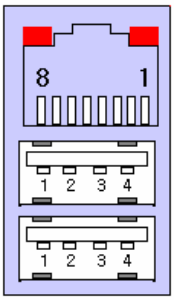

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | DCD(Data Carrier Detect) | 2 | DSR(Data Set Ready) |
| 3 | SIN(Serial Input) | 4 | RTS(Request To Send) |
| 5 | SOUT(Serial Output) | 6 | CTS(Clear To Send) |
| 7 | DTR(Data Terminal Ready | 8 | RI(Ring Indicator) |
| 9 | GND | 10 | GND |

### 4.2.7 KEYBOARD/MOUSE CONNECTOR [KM1]



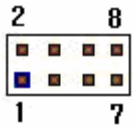
| PIN | KEYBOARD | MOUSE |
|---|---|---|
| 1 | KEYBOARD DATA | MOUSE DATA |
| 2 | NC | NC |
| 3 | GND | GMD |
| 4 | +5V | +5V |
| 5 | KEYBOARD CLOCK | MOUSE CLOCK |
| 6 | NC | NC |

### 4.2.8 LAN+USB CONNECTOR [U11]



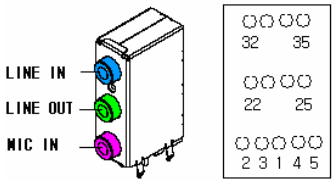

| USB | PIN | LAN |
|---|---|---|
| USBVCC | 1 | TX+ |
| DATA- | 2 | TX- |
| DATA+ | 3 | RX+ |
| USBGND | 4 | NC |
| | 5 | NC |
| | 6 | RX- |
| | 7 | NC |
| | 8 | NC |

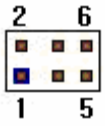
### 4.2.9 UNIVERSAL SERIAL BUS CONNECTOR [USB1, USB2]



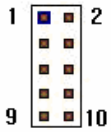

| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | USB PORT VCC | 2 | USB PORT VCC |
| 3 | USB0 D- | 4 | USB1 D- |
| 5 | USB0 D+ | 6 | USB1 D+ |
| 7 | GND | 8 | GND |

### 4.2.10 AUDIO CONNECTOR [AUD2, AUD1]

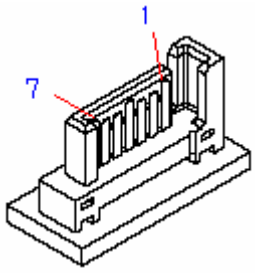
| AUDIO2 | LINE IN | | LINE OUT | | MIC IN | |
|---|---|---|---|---|---|---|
|  | PIN | SIGNAL | PIN | SIGNAL | PIN | SIGNAL |
| | 1 | GND | 22 | FRONT_L | 32 | MIC REF |
| | 2 | LINE IN L | 23 | NC | 33 | NC |
| | 3 | NC | 24 | NC | 34 | NC |
| | 4 | NC | 25 | FRONT_R | 35 | MIC IN |
| | 5 | LINE IN R | | | | |

| | PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|---|
|  | 1 | REAR_L | 2 | REAR_R |
| | 3 | GND | 4 | GND |
| | 5 | LFEOUT | 6 | CENTOUT |

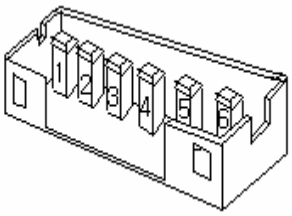
### 4.2.11 DIGITAL I/O INTERFACE CONNECTOR [DIO1]

|  | DESCRIPTION | SIGNAL | PIN | PIN | SIGNAL | DESCRIPTION |
|---|---|---|---|---|---|---|
| | General purpose I/O | GPIO10 | 1 | 2 | GPIO11 | General purpose I/O |
| | General purpose I/O | GPIO12 | 3 | 4 | GPIO13 | General purpose I/O |
| | General purpose I/O | GPIO14 | 5 | 6 | GPIO15 | General purpose I/O |
| | General purpose I/O | GPIO16 | 7 | 8 | GPIO17 | General purpose I/O |
| | +5V POWER | +5V | 9 | 10 | GND | GND |

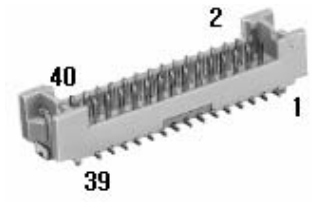
### 4.2.12 SATA INTERFACE CONNECTOR [SATA1, SATA2, SATA3, SATA4]

|  | PIN | SATA1 | SATA2 |
|---|---|---|---|
| | 1 | GND1 | GND1 |
| | 2 | ICH_STAT_TXP0 | ICH_SATA_TXP1 |
| | 3 | ICH_SATA_TXN0 | ICH_SATA_TXN1 |
| | 4 | GND2 | GND2 |
| | 5 | ICH_SATA_RXN0 | ICH_SATA_RXN1 |
| | 6 | ICH_STAT_RXP0 | ICH_SATA_RXP1 |
| | 7 | GND3 | GND3 |

### 4.2.13 LVDS PANEL BACKLIGHT VOLTAGE SELECT [W1] (Option)

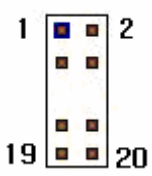
| PIN | SIGNAL |  |
|---|---|---|
| 1 | BACKLIGHT VOLTAGE | |
| 2 | +5V | |
| 3 | +3V | |
| 4 | ENABLE BACKLIGHT | |
| 5,6 | GND | |

### 4.2.14 LVDS INTERFACE CONNECTOR [LVDS1] (Option)




| SIGNAL | PIN | PIN | SIGNAL |
|---|---|---|---|
| VCC_LCD | 2 | 1 | VCC_LCD |
| VCC_LCD | 4 | 3 | VCC_LCD |
| GND | 6 | 5 | GND |
| AOM | 8 | 7 | A4M |
| AOP | 10 | 9 | A4P |
| GND | 12 | 11 | GND |
| A1M | 14 | 13 | A5M |
| A1P | 16 | 15 | A5P |
| GND | 18 | 17 | GND |
| A2M | 20 | 19 | A6M |
| A2P | 22 | 21 | A6P |
| GND | 24 | 23 | GND |
| CLK1M | 26 | 25 | CLK2M |
| CLK1P | 28 | 27 | CLK2P |
| GND | 30 | 29 | GND |
| SD DDC | 32 | 31 | SC DDC |
| GND | 34 | 33 | GND |
| A3M | 36 | 35 | A7M |
| A3P | 38 | 37 | A7P |
| GND | 40 | 39 | GND |

### 4.2.15 Parallel INTERFACE CONNECTOR [LPT1]




| PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|
| 1 | STB- | 2 | AFD- |
| 3 | PD0 | 4 | ERR- |
| 5 | PD1 | 6 | INIT- |
| 7 | PD2 | 8 | SLIN- |
| 9 | PD3 | 10 | ACK- |
| 11 | PD4 | 12 | BUSY |
| 13 | PD5 | 14 | PE |
| 15 | PD6 | 16 | SLCT |
| 17 | PD7 | 18,19,20 | GND |

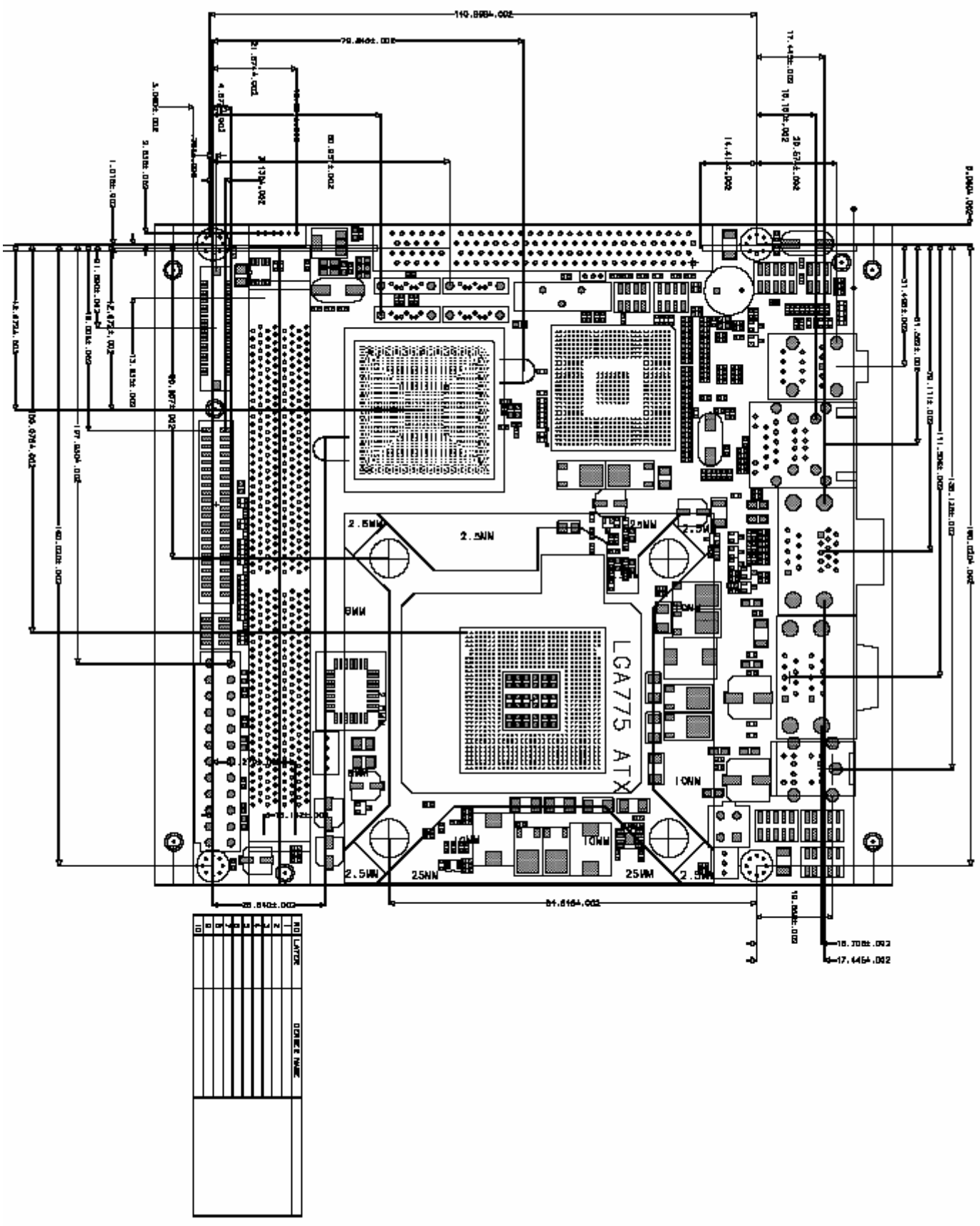
### 4.2.16 IDE INTERFACE CONNECTOR [IDE1]

| PIN | SIGNAL | Description |
|---|---|---|
| 1 | IDEPRSTX | Reset signal to the hard disk |
| 2,22,24,26, 28,30,32,40 | GND | Hard Disk GND |
| 3 | IDEPDR7 | Low part of data bus |
| 4 | IDEPDR8 | High part of data bus |
| 5 | IDEPDR6 | Low part of data bus |
| 6 | IDEPDR9 | High part of data bus |
| 7 | IDEPDR5 | Low part of data bus |
| 8 | IDEPDR10 | High part of data bus |
| 9 | IDEPDR4 | Low part of data bus |
| 10 | IDEPDR11 | High part of data bus |
| 11 | IDEPDR3 | Low part of data bus |
| 12 | IDEPDR12 | High part of data bus |
| 13 | IDEPDR2 | Low part of data bus |
| 14 | IDEPDR13 | High part of data bus |
| 15 | IDEPDR1 | Low part of data bus |
| 16 | IDEPDR14 | High part of data bus |
| 17 | IDEPDR0 | Low part of data bus |
| 18 | IDEPDR15 | High part of data bus |
| 19 | GND | Hard Disk GND |
| 20 | NC | Not Connected |
| 21 | IDEPDREQR | Disk DMA Request might be driven by the IDE hard disk to request bus master access to the PCI bus |
| 23 | IDEPIOWX | I/O Write |
| 25 | IDEPIORX | I/O Read |
| 27 | IDEPIORDYR | This signal may be driven by the hard disk to extend the current I/O cycle |
| 29 | IDEPDACKX | Disk DMA Acknowledge |
| 31 | IDEPINTR | Interrupt line from hard disk |
| 33 | IDEPA1 | Address line, used to address i/o registers in the IDE hard disk |
| 34 | NC | Not Connected |
| 35,36 | IDEPA0,2 | Address line, used to address i/o registers in the IDE hard disk |
| 37 | IDEPCS0X | Hard Disk Chip-Select |
| 38 | IDEPCS1X | Hard Disk Chip-Select |
| 39 | HDDLED | Signal from hard disk indicating hard disk activity |
| 41,42 | +5 V | +5V POWER |
| 43 | GND | Hard Disk GND |
| 44 | NC | Not Connected |

### 4.2.17 PCI INTERFACE CONNECTOR [PCI1]

| PIN | SIGNAL | PIN | SIGNAL | PIN | SIGNAL | PIN | SIGNAL |
|---|---|---|---|---|---|---|---|
| A1 | NC | A2 | +12V | B1 | -12V | B2 | NC |
| A3 | NC | A4 | NC | B2 | GND | B4 | NC |
| A5 | +5V | A6 | INT_B | B5 | +5V | B6 | +5V |
| A7 | INT_D | A8 | +5V | B7 | INT_C | B8 | INT_A |
| A9 | NC(IDSEL1) | A10 | +5V | B9 | PRSTN_11 | B10 | NC(PCICLK1) |
| A11 | NC(GNT1) | A12 | GND | B11 | PRSNT_12 | B12 | GND |
| A13 | GND | A14 | +3.3V | B13 | GND | B14 | NC(REQ1) |
| A15 | PCIRST | A16 | +5V | B15 | GND | B16 | PCICLK0 |
| A17 | PGNT_0 | A18 | GND | B17 | GND | B18 | PREQ_0 |
| A19 | NC | A20 | AD30 | B19 | +5V | B20 | AD31 |
| A21 | +3.3V | A22 | AD28 | B21 | AD29 | B22 | GND |
| A23 | AD26 | A24 | GND | B23 | AD27 | B24 | AD25 |
| A25 | AD24 | A26 | AD18 | B25 | +3.3V | B26 | C_BE_3 |
| A27 | +3.3V | A28 | AD22 | B27 | AD23 | B28 | GND |
| A29 | AD20 | A30 | GND | B29 | AD21 | B30 | AD19 |
| A31 | AD18 | A32 | AD16 | B31 | +3.3V | B32 | AD17 |
| A33 | +3.3V | A34 | FRAME_ | B33 | C_BE_2 | B34 | GND |
| A35 | GND | A36 | TRDY_ | B35 | IRDY_ | B36 | +3.3V |
| A37 | GND | A38 | STOP_ | B37 | DEVSEL_ | B38 | GND |
| A39 | +3.3V | A40 | +5V | B39 | PLOCK_ | B40 | PERR_ |
| A41 | +5V | A42 | GND | B41 | +3.3V | B42 | SERR_ |
| A43 | PAR | A44 | AD15 | B43 | +3.3V | B44 | C_BE_1 |
| A45 | +3.3V | A46 | AD13 | B45 | AD14 | B46 | GND |
| A47 | AD11 | A48 | GND | B47 | AD12 | B48 | AD10 |
| A49 | AD9 | A50 | GND | B49 | GND | B50 | GND |
| A51 | GND | A52 | C_BE_0 | B51 | GND | B52 | AD8 |
| A53 | +3.3V | A54 | AD6 | B53 | AD7 | B54 | +3.3V |
| A55 | AD4 | A56 | GND | B55 | AD5 | B56 | AD3 |
| A57 | AD2 | A58 | AD0 | B57 | GND | B58 | AD1 |
| A59 | +5V | A60 | PREQ64_1 | B59 | +5V | B60 | PACK64_1 |
| A61 | +5V | A62 | +5V | B61 | +5V | B62 | +5V |

## 5. MEASUREMENT DRAWING



# 6. REVISION HISTORY

### 6.1.1 BIOS

- 081201 -- Wolfdale FSB1066 지원 가능

### 6.1.2 MANUAL

- 090210 -- Wolfdale FSB1066 지원 가능, REVISION HISTORY 추가

# 7. REFERENCE

- Technical Support -- gkdisan@syncus.co.kr
- Sales Support -- syncus@syncus.co.kr