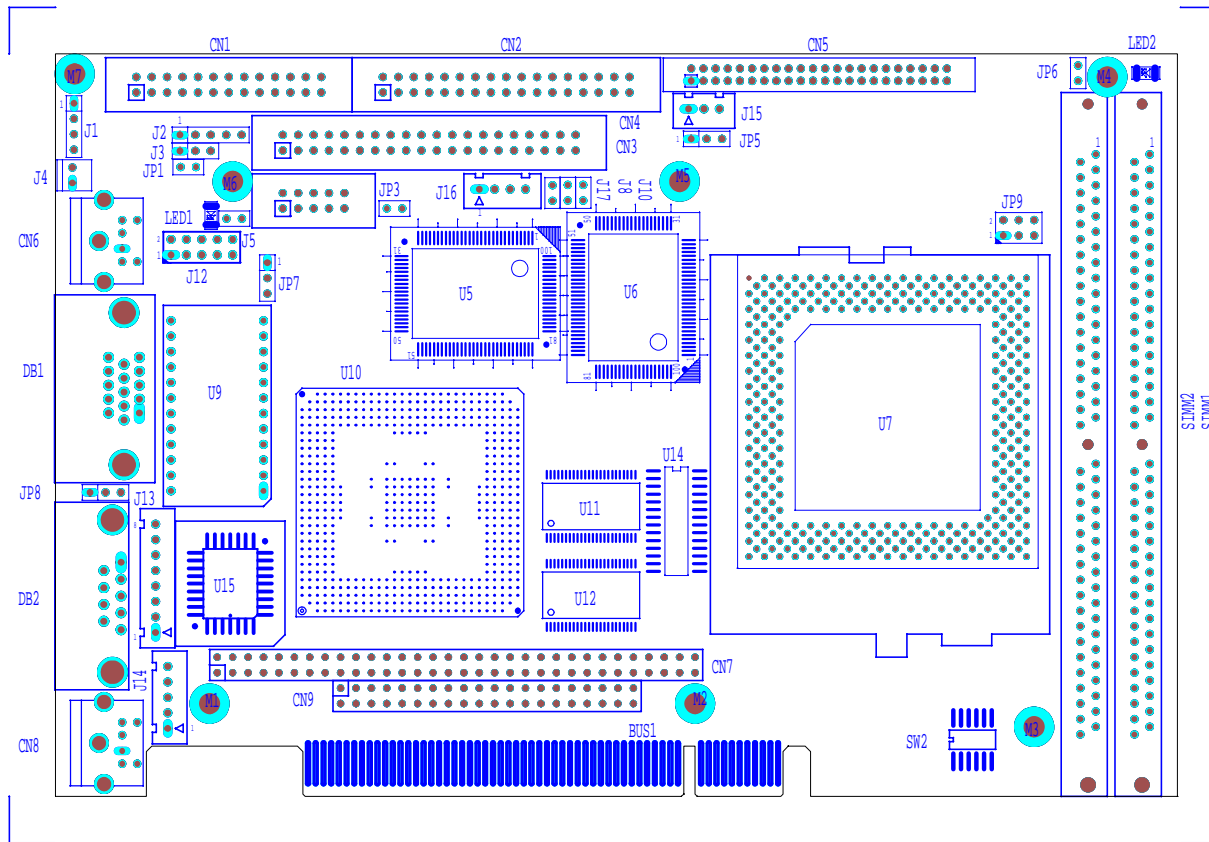


# AR-B1540/AR-B1541 Manual

## Version 1.7

### 1. SETTING UP THE SYSTEM



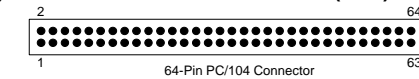
**CAUTION 1:** The detail description manual file was attached in the software utility diskette.  
**CAUTION 2:** it is suggested to use 2 SIMMs on board with the same brand, model, memory size and specification, so that the system can function normally.

### 2. PACKING LIST

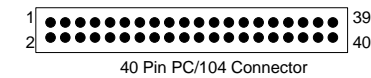
- The quick setup manual
- 1 AR-B1540 or AR-B1541 CPU board
- 1 Hard disk drive adapter cable
- 1 Floppy disk drive adapter cable
- 1 Parallel port adapter cable & 1 RS-232C interface cable mounted on one bracket
- 1 Keyboard adapter cable
- 1 USB device adapter cable
- 3 Software utility diskettes

#### 2.1. PC/104 CONNECTOR

(1) 64 Pin PC/104 Connector A & B (CN7)



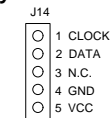
(2) 40 Pin PC/104 Connector Bus C & D (CN9)



#### 2.2. KEYBOARD CONNECTOR

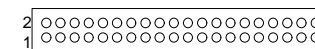
(1) 6 Pin mini keyboard connector (CN8)

(2) AUX. Keyboard Connector (J14)

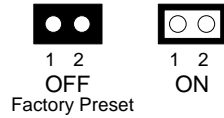
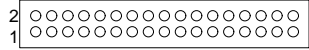


#### 2.3. PS/2 MOUSE CONNECTOR (CN6)

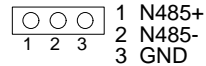
#### 2.4. HARD DISK (IDE) CONNECTOR (CN2)



## 2.5. FDD PORT CONNECTOR (CN4)

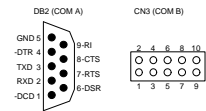


(3) RS-485 Header (J3)



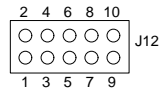
J3 (COM B)

(4) RS-232 Connector (CN3 & DB2)

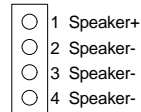


| CN3 | DB2 | Signal | CN3 | DB2 | Signal   |
|-----|-----|--------|-----|-----|----------|
| 1   | 1   | -DCD   | 2   | 6   | -DSR     |
| 3   | 2   | RXD    | 4   | 7   | -RTS     |
| 5   | 3   | TXD    | 6   | 8   | -CTS     |
| 7   | 4   | -DTR   | 8   | 9   | -RI      |
| 9   | 5   | GND    | 10  | --  | Not Used |

## 2.8. USB CONNECTOR (J12)

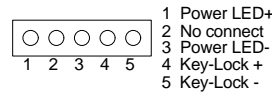


## 2.9. EXTERNAL SPEAKER HEADER (J1)

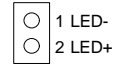


## 2.10. LED HEADER

- (1) External Power LED & Keyboard Lock Header (J2)



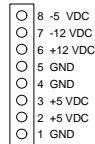
(2) HDD LED Header (J8)



(3) Watchdog LED Header (J5)



## 2.11. POWER CONNECTOR (J13)

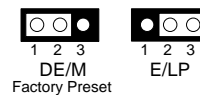


## 2.12. DRAM CONFIGURATION

| SIMM2        | SIMM1        | Total Memory |
|--------------|--------------|--------------|
| 256KX32(X36) | 256KX32(X36) | 2MB          |
| 512KX32(X36) | 512KX32(X36) | 4MB          |
| 1MX32(X36)   | 1MX32(X36)   | 8MB          |
| 2MX32(X36)   | 2MX32(X36)   | 16MB         |
| 4MX32(X36)   | 4MX32(X36)   | 32MB         |
| 8MX32(X36)   | 8MX32(X36)   | 64MB         |
| 16MX32(X36)  | 16MX32(X36)  | 128MB        |

## 2.13. LCD CONNECTOR

(1) DE/E Signal from M or LP Select (JP5)



(2) LCD Panel Display Connector (CN5)



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | GND    | 2   | SHFCLK |
| 3   | GND    | 4   | LP     |
| 5   | FLM    | 6   | GND    |
| 7   | P0     | 8   | P1     |
| 9   | P2     | 10  | P3     |
| 11  | P4     | 12  | P5     |
| 13  | GND    | 14  | P6     |
| 15  | P7     | 16  | P8     |
| 17  | P9     | 18  | P10    |
| 19  | P11    | 20  | GND    |
| 21  | P12    | 22  | P13    |
| 23  | P14    | 24  | P15    |
| 25  | P16    | 26  | P17    |
| 27  | GND    | 28  | P18    |
| 29  | P19    | 30  | P20    |
| 31  | P21    | 32  | P22    |
| 33  | P23    | 34  | GND    |
| 35  | VCC    | 36  | VCC    |
| 37  | +12V   | 38  | +12V   |
| 39  | GND    | 40  | GND    |
| 41  | DE     | 42  | ENABLK |
| 43  | GND    | 44  | VEE    |

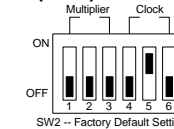
## 2.14. RESET HEADER (J10)

## 2.15. CRT CONNECTOR (DB1)

## 2.16. CPU SETTING

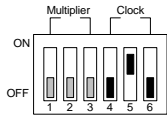
### A. System Base Clock & CPU Clock

#### Multiplier (SW2)

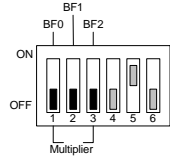


(1) CPU Base Clock Select (SW2)

| SW2-4 | SW2-5 | SW2-6 | Base Clock | PCI Clock |
|-------|-------|-------|------------|-----------|
| ON    | ON    | OFF   | 50MHz      | 25MHz     |
| OFF   | ON    | OFF   | 66.6MHz    | 33.3MHz   |
| ON    | OFF   | OFF   | 60MHz      | 30MHz     |
| OFF   | OFF   | OFF   | 55MHz      | 27.5MHz   |
| OFF   | OFF   | ON    | 75MHz      | 37.5MHz   |



(2) CPU Clock Multiplier Select (SW2)



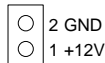
B. CPU Logic Core Voltage Select (SW1)



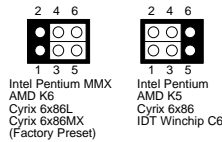
SW1 -- Factory Default Setting

| SW1-1 | SW1-2 | SW1-3 | SW1-4 | SW1-5 | SW1-6 | Voltage |
|-------|-------|-------|-------|-------|-------|---------|
| OFF   | OFF   | OFF   | OFF   | OFF   | --    | 1.96V   |
| ON    | OFF   | OFF   | OFF   | OFF   | --    | 2.06V   |
| OFF   | ON    | OFF   | OFF   | OFF   | --    | 2.16V   |
| ON    | ON    | OFF   | OFF   | OFF   | --    | 2.2V    |
| ON    | ON    | OFF   | OFF   | OFF   | --    | 2.26V   |
| OFF   | OFF   | ON    | OFF   | OFF   | --    | 2.36V   |
| ON    | OFF   | ON    | OFF   | OFF   | --    | 2.4V    |
| ON    | OFF   | ON    | OFF   | OFF   | --    | 2.46V   |
| OFF   | ON    | ON    | OFF   | OFF   | --    | 2.56V   |
| ON    | ON    | ON    | OFF   | OFF   | --    | 2.66V   |
| OFF   | OFF   | OFF   | ON    | OFF   | --    | 2.76V   |
| ON    | OFF   | OFF   | ON    | OFF   | --    | 2.86V   |
| OFF   | ON    | OFF   | ON    | OFF   | --    | 2.96V   |
| ON    | ON    | OFF   | ON    | OFF   | --    | 3.06V   |
| OFF   | OFF   | ON    | ON    | OFF   | --    | 3.16V   |
| ON    | OFF   | ON    | ON    | OFF   | --    | 3.26V   |
| OFF   | ON    | ON    | ON    | OFF   | --    | 3.36V   |
| ON    | ON    | ON    | ON    | OFF   | --    | 3.46V   |

C. CPU Cooling Fan Power Connector (J4)



D. P54C/P55C CPU Type Select (JP9)



Intel CPU

| CPU Type      | Work Frequency | SW2     |            | SW2-1 | SW2-2 | SW2-3 | SW1        |
|---------------|----------------|---------|------------|-------|-------|-------|------------|
|               |                | Clock   | Multiplier | BF0   | BF1   | BF2   |            |
| Pentium - 75  | 75MHz          | 50.0MHz | 1.5X       | Off   | Off   | Off   | 3.36V      |
| Pentium - 90  | 90MHz          | 60.0MHz | 1.5X       | Off   | Off   | Off   |            |
| Pentium - 100 | 100MHz         | 66.7MHz | 1.5X       | Off   | Off   | Off   |            |
| Pentium - 120 | 120MHz         | 60.0MHz | 2.0X       | On    | Off   | Off   |            |
| Pentium - 133 | 133MHz         | 66.7MHz | 2.0X       | On    | Off   | Off   |            |
| Pentium - 150 | 150MHz         | 60.0MHz | 2.5X       | On    | On    | Off   |            |
| Pentium - 166 | 166MHz         | 66.7MHz | 2.5X       | On    | On    | Off   |            |
| Pentium - 200 | 200MHz         | 66.7MHz | 3.0X       | Off   | On    | Off   | B1540 only |
| MMX-166       | 166MHz         | 66.7MHz | 2.5X       | On    | On    | Off   | 2.86V      |
| MMX-200       | 200MHz         | 66.7MHz | 3.0X       | Off   | On    | Off   |            |
| MMX-233       | 233MHz         | 66.7MHz | 3.5X       | Off   | Off   | Off   |            |

AMD CPU

| CPU Type         | Work Frequency | SW2     |            | SW2-1 | SW2-2 | SW2-3 | SW1   |
|------------------|----------------|---------|------------|-------|-------|-------|-------|
|                  |                | Clock   | Multiplier | BF0   | BF1   | BF2   |       |
| K5-PR75(ABR)     | 75MHz          | 50.0MHz | 1.5X       | Off   | Off   | Off   | 3.46V |
| K5-PR90(ABR)     | 90MHz          | 60.0MHz | 1.5X       | Off   | Off   | Off   |       |
| K5-PR100(ABR)    | 100MHz         | 66.7MHz | 1.5X       | Off   | Off   | Off   |       |
| K5-PR120(ABR)    | 90MHz          | 60.0MHz | 1.5X       | On    | Off   | Off   |       |
| K5-PR133(ABR)    | 100MHz         | 66.7MHz | 1.5X       | On    | Off   | Off   |       |
| K5-PR166(ABR)    | 116.7MHz       | 66.7MHz | 1.75X      | On    | On    | Off   |       |
| K5-PR75(AFR)     | 75MHz          | 50.0MHz | 1.5X       | Off   | Off   | Off   | 3.36V |
| K5-PR90(AFR)     | 90MHz          | 60.0MHz | 1.5X       | Off   | Off   | Off   |       |
| K5-PR100(AFR)    | 100MHz         | 66.7MHz | 1.5X       | Off   | Off   | Off   |       |
| K5-PR120(AFR)    | 90MHz          | 60.0MHz | 1.5X       | On    | Off   | Off   |       |
| K5-PR133(AFR)    | 100MHz         | 66.7MHz | 1.5X       | On    | Off   | Off   |       |
| K5-PR166(AFR)    | 116.7MHz       | 66.7MHz | 1.75X      | On    | On    | Off   |       |
| K6-166(MMX)(ANR) | 166MHz         | 66.7MHz | 2.5X       | On    | On    | Off   | 2.96V |
| K6-200(MMX)(ANR) | 200MHz         | 66.7MHz | 3.0X       | Off   | On    | Off   |       |
| K6-233(MMX)(ANR) | 233MHz         | 66.7MHz | 3.5X       | Off   | Off   | Off   | 3.36V |
| K6-2-300         | 300MHz         | 66.7MHz | 4.5X       | On    | On    | On    | 2.26V |
| K6-2-333         | 333MHz         | 66.7MHz | 5.0X       | Off   | On    | On    |       |
| K6-2-366         | 366MHz         | 66.7MHz | 5.5X       | Off   | Off   | On    | 2.2V  |
| K6-2-380         | 375MHz         | 75 MHz  | 5.0X       | Off   | On    | On    |       |
| K6-2-400         | 400MHz         | 66.7MHz | 6.0X       | On    | Off   | Off   |       |
| K6-2-450         | 450MHz         | 75 MHz  | 6.0X       | On    | Off   | Off   |       |
| K6-2-450         | 450MHz         | 75 MHz  | 6.0X       | On    | Off   | Off   | 2.4V  |
| K6-3-400         | 400MHz         | 66.7MHz | 6.0X       | On    | Off   | Off   | 2.2V  |
| K6-3-400         | 400MHz         | 66.7MHz | 6.0X       | On    | Off   | Off   | 2.4V  |
| K6-3-450         | 450MHz         | 75 MHz  | 6.0X       | On    | Off   | Off   |       |

Cyrix CPU

| CPU Type       | Work Frequency | SW2     |            | SW2-1  | SW2-2  | SW2-3 | SW1   |
|----------------|----------------|---------|------------|--------|--------|-------|-------|
|                |                | Clock   | Multiplier | BF0    | BF1    | BF2   |       |
| 6X86-PR100     | 80MHz          | 40.0MHz | 2.0X       | On     | Off    | Off   | 3.36V |
| 6X86-PR120     | 100MHz         | 50.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86-PR133     | 110MHz         | 55.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86-PR150     | 120MHz         | 60.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86-PR166     | 133MHz         | 66.7MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86-PR200     | 150MHz         | 75.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86L-PR120    | 100MHz         | 50.0MHz | 2.0X       | On     | Off    | Off   | 2.86V |
| 6X86L-PR133    | 110MHz         | 55.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86L-PR150    | 120MHz         | 60.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86L-PR166    | 133MHz         | 66.7MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86L-PR200    | 150MHz         | 75.0MHz | 2.0X       | On     | Off    | Off   |       |
| 6X86PR166(MMX) | 150/133MHz     | 66.7MHz | 2.5/2.0X   | On     | On/Off | Off   | 2.96V |
| 6X86PR200(MMX) | 166/150MHz     | 66.7MHz | 2.5/2.0X   | On     | Off/On | Off   |       |
| 6X86PR233(MMX) | 187.5/200MHz   | 75.6MHz | 2.5/3.0X   | Off/On | On     | Off   |       |
| 6X86PR300(MMX) | 233MHz         | 66.7MHz | 3.5X       | Off    | Off    | Off   |       |

IDT Winchip CPU

| CPU Type   | Work Frequency | SW2     |            | SW2-1 | SW2-2 | SW2-3 | SW1   |
|------------|----------------|---------|------------|-------|-------|-------|-------|
|            |                | Clock   | Multiplier | BF0   | BF1   | BF2   |       |
| IDT C6-180 | 180MHz         | 60.0MHz | 3.0X       | Off   | On    | Off   | 3.46V |
| IDT C6-200 | 200MHz         | 66.7MHz | 3.0X       | Off   | On    | Off   |       |
| IDT C6-225 | 225MHz         | 75.0MHz | 3.0X       | Off   | On    | Off   |       |
| IDT C6-240 | 240MHz         | 60.0MHz | 4.0X       | On    | Off   | On    |       |

- NOTE:**
- SW2 jumper setting; BF0-BF2: On presents Low, Off presents High.
  - Intel CPU MMX - 233 is factory default setting.
  - SW1 is used to select the CPU logic core voltage. It's setting is mentioned previously.

**AR-B1540** These CPU boards add the following notice for DRAM Installation. For Pentium® main boards, it is suggested to use 2 SIMMs on board with the same brand, model, memory size and specification, so that the system can function normally.

**AR-B1541** 1) P54C CPU not supported AR-B1541 does not support the Intel P54C series CPUs.

2) DRAM Installation

It is suggested to use 2 SIMMs on board with the same brand, model, memory size and specification, so that the system can function normally.