YMF724 - PCI SOUND CARD

Configuration and Hardware

USER MANUAL

March 1999

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1.   DESCRIPTION

"YMF724 D10", "YMF724 G50", and "YMF724 J8x" are new audio adapters that provide the next generation of PCI audio performance to the PC market. The adapters not only meet the new demands of advanced PC audio applications but also enable the integration of a complete multimedia subsystem on a single adapter. The adapter functionality and interfaces are compliant with all major industry standards, including the SoundBlaster Compatible, PC'97, Windows® 95 Direct Sound, Windows® Sound System and PCI 2.1 bus specification.

1.1.   Features

- PCI 2.1 compliant
- PCI Bus Power Management rev. 1.0 compliant
- PCI Bus master for PCI Audio
    - ⇒ True Full Duplex Playback and Capture with different Sampling Rate
    - ⇒ Maximum 64-voice XG capital Wavetable Synthesizer including
    - ⇒ GM compatibility
    - ⇒ Direct Sound Hardware Acceleration
    - ⇒ Direct Music Hardware Acceleration
    - ⇒ Downloadable Sound (DLS) level-1
- Legacy Audio compatibility
    - ⇒ Genuine OPL3
    - ⇒ Hardware SoundBlaster Pro compatibility
    - ⇒ MPU-401 UART mode MIDI interface
    - ⇒ Joystick
- Supports PC/PCI and distributed DMA for Legacy DMAC (8237) emulation
- Supports AC-1 interface (AC-Link)
- Single Crystal operation (24.576 MHz)
- 5V Power supply for I/O. 3.3V Power supply for internal core logic
- Compliant with AC'97 Requirements
    - ⇒ 4 Stereo Inputs: LINE, CD, VIDEO, AUX
    - ⇒ TAD connector for mono In and Output for modem Audio
    - ⇒ 1 MIC Input
    - ⇒ Stereo LINE Output/ Speaker Output
- 20 dB MIC Amplifier
- Analog Characteristics
    - ⇒ A/D S/N: 85 dB
    - ⇒ D/A S/N: 90 dB
- Low Power Consumption
- Built-in 2-Channel Power Amplifier

1.2.   Card Figure for "YMF724 D10"
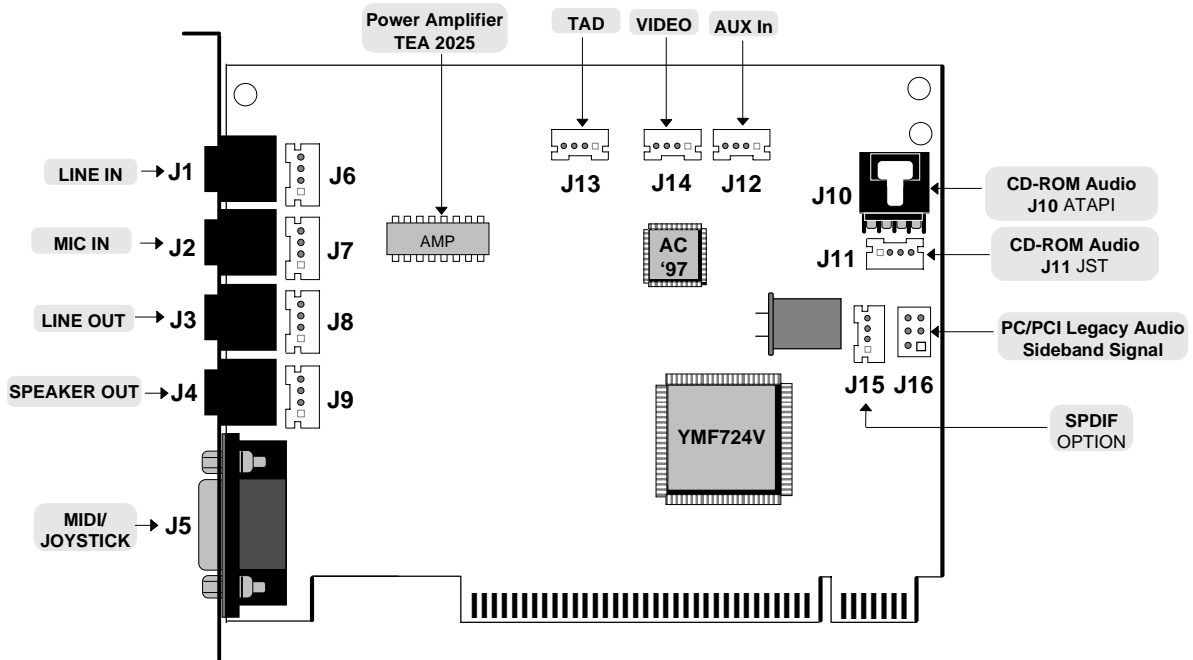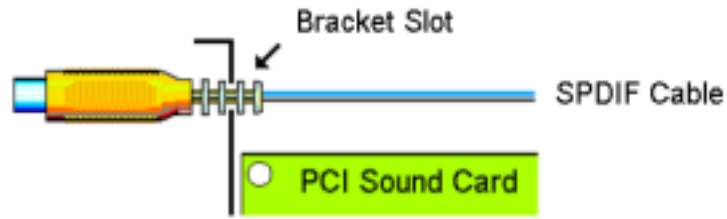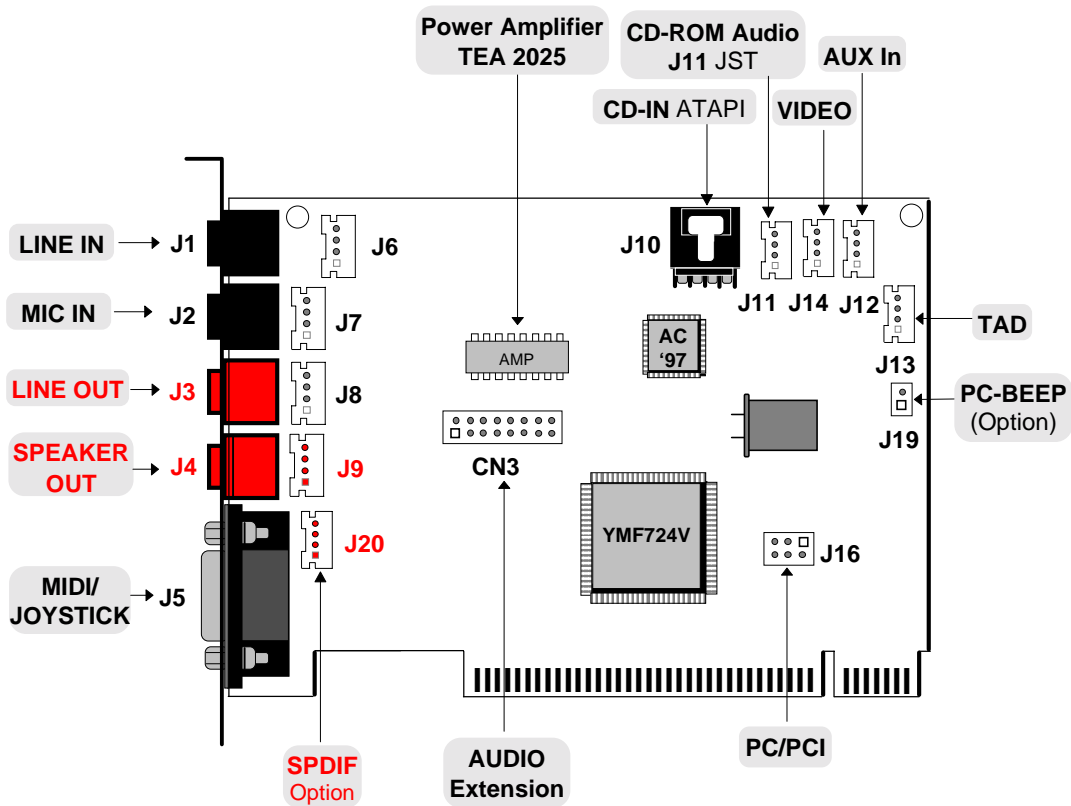

1.3.   Card Figure for "YMF724 G50"
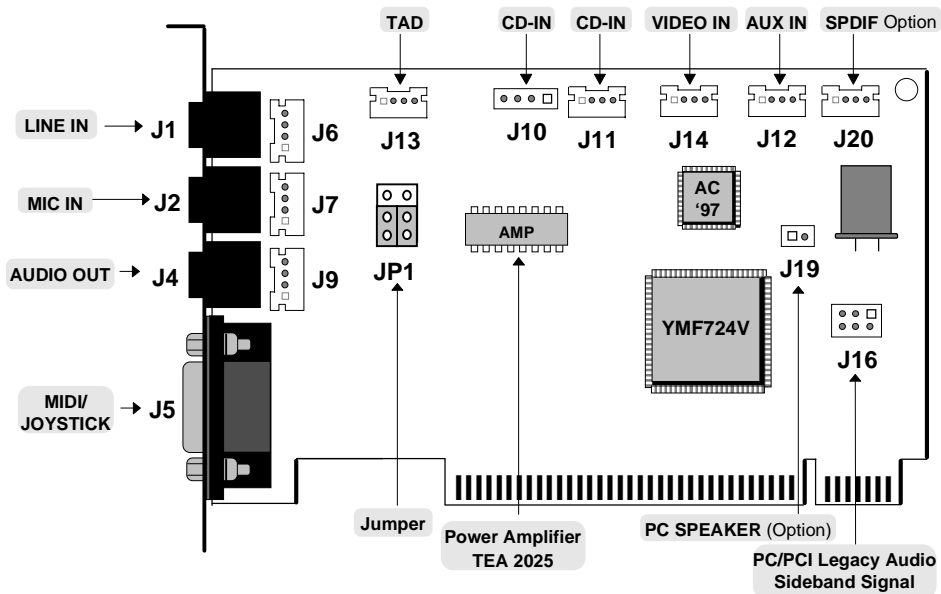
1.3.1. SPDIF Cable for D10/G50

If your package contains a SPDIF cable and you want to use digital Output (SPDIF connector), please insert the SPDIF cable into the bracket slot of your PCI sound card, as displayed in the following figure.
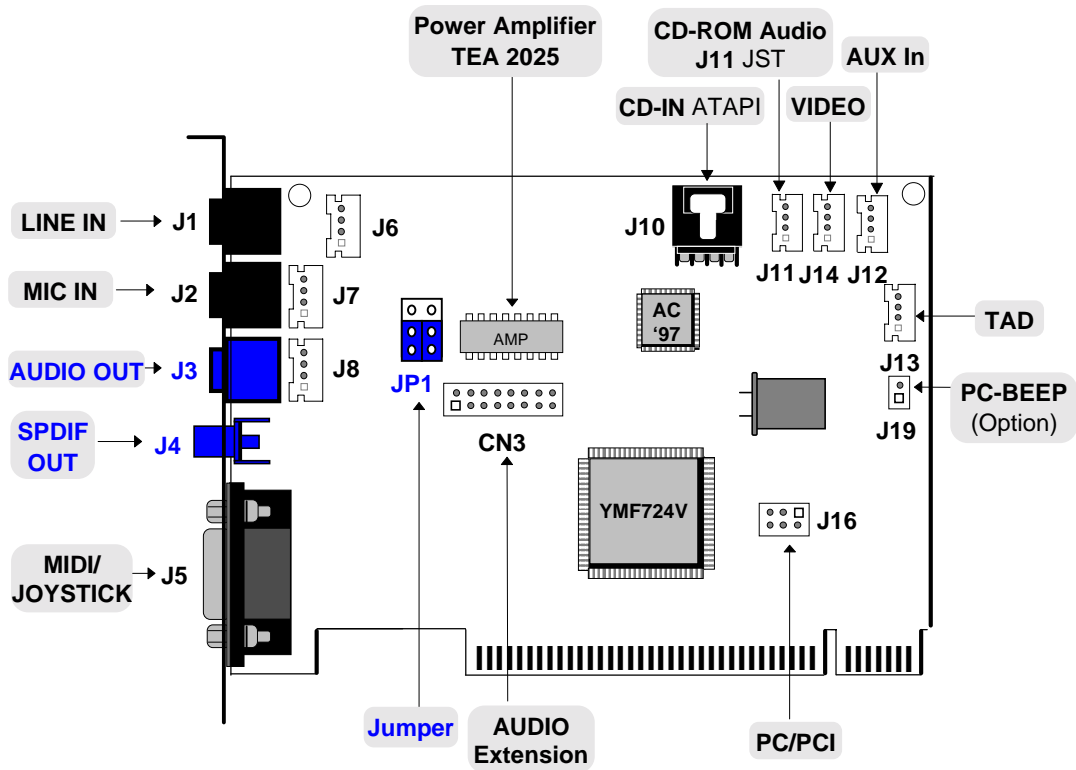

1.4. Card Figure for "YMF724 J80"

"YMF724 J80"

1.5. Card Figure for "YMF724 J81"

"YMF724 J81"

1.6.   Connectors for "YMF724 D10"

"YMF724 D10" includes up to seven internal connectors, four external Jack Ports, one external MIDI/ Joystick connector, one VIDEO connector, one TAD/VOICE Modem connector, one SPDIF, and one PC/PCI Legacy AUDIO SIDEBAND SIGNAL connector.

1.6.1. External Connectors:

J1: .... ∅ 3.5mm Phone Jack for **LINE IN**

J2: .... ∅ 3.5mm Phone Jack for **MIC IN**

J3: .... ∅ 3.5mm Phone Jack for **LINE OUT**

J4: .... ∅ 3.5mm Phone Jack for **SPEAKER OUT**

J5: .... Connector for **MIDI/JOYSTICK**

1.6.2. Internal Connectors:

J6: .... Internal connector for **LINE IN** (optional)

J7: .... Internal connector for **MIC IN** (optional)

J8: .... Internal connector for **LINE OUT** (optional)

J9: .... Internal connector for **SPEAKER OUT** (optional)

J10: .... Connector for **CD AUDIO IN** (ATAPI)

J11: .... Connector for **CD AUDIO IN** (JST)

J12: .... Connector for **AUX IN**

J13: .... Connector for **TAD/VOICE MODEM**

J14: .... Connector for **VIDEO IN**

J15: .... Connector for **SPDIF** (optional)

J16: .... Connector for **PC/PCI Legacy Audio SIDEBAND SIGNAL**

1.6.3. Audio Connectors:

J6/J7/J8/J9:

R
G
G
L

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

**J10:   ATAPI
          CD-Audio**

L   G   G   R

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J11: CD-Audio

G   L   G   R

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J12: AUX In

R   G   G   L

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J13: TAD/Voice Modem

4   3   2   1

1   PHONE IN
2   GROUND
3   GROUND
4   MONO OUT

J14: VIDEO IN

R   G   G   L

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J15: SPDIF

4
3
2
1

1   SPDIF OUTPUT
2   GROUND
3   GROUND
4   SPDIF OUTPUT

J16: PC/PCI

6   5
4   3
2   1

1   PCGNT #
2   GROUND
3   N.C.
4   PCREQ #
5   GROUND
6   SERIRQ #

1.7. Connectors for "YMF724 G50"

"YMF724 G50" includes up to eight internal connectors, three external Jack Ports, one external MIDI/ Joystick connector, one VIDEO connector, one TAD/VOICE Modem connector, and one PC/PCI Legacy AUDIO SIDEBAND SIGNAL connector.

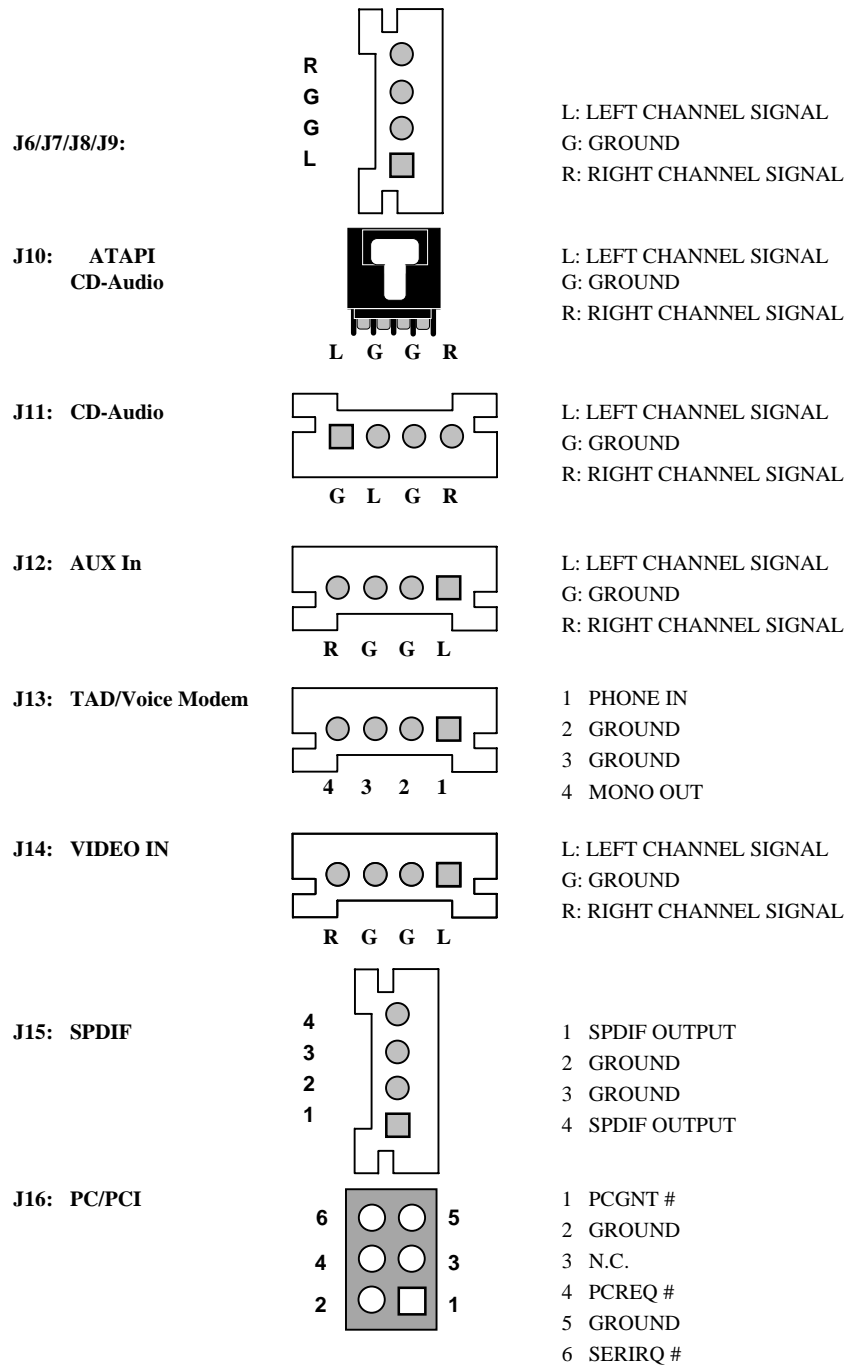### 1.7.1. External Connectors:

J1: .... ∅ 3.5mm Phone Jack for **LINE IN**

J2: .... ∅ 3.5mm Phone Jack for **MIC IN**

J4: .... ∅ 3.5mm Phone Jack for **AUDIO OUT**

J5: .... Connector for **MIDI/JOYSTICK**

1.7.2. Internal Connectors:

J6: .... Internal connector for **LINE IN** (optional)

J7: .... Internal connector for **MIC IN** (optional)

J9: .... Internal connector for **AUDIO OUT** (optional)

J10: .... Connector for **CD-AUDIO IN**

J11: .... Connector for **CD-AUDIO IN**

J12: .... Connector for **AUX IN**

J13: .... Connector for **TAD/VOICE MODEM**

J14: .... Connector for **VIDEO IN**

J16: .... Connector for **PC/PCI Legacy Audio SIDEBAND SIGNAL**

J19: .... Connector for **PC SPEAKER** (optional)

J20: .... Connector for **SPDIF** (optional)

JP1:....................... Jumper for switching between **LINE OUT/SPEAKER OUT**

1.7.3. Audio Connectors:

J6/J7/J9:
R
G
G
L

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J10:   CD-Audio

R   G   G   L

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J11:   CD-Audio

G   L   G   R

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J12: AUX In

L   G   G   R

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J13: TAD/Voice Modem

1   2   3   4

1 PHONE IN
2 GROUND
3 GROUND
4 MONO OUT

J14: VIDEO IN

L   G   G   R

L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J16: PC/PCI

5   3   1

6   4   2

1 PCGNT #
2 GROUND
3 N.C.
4 PCREQ #
5 GROUND
6 SERIRQ #

J19: PC BEEP

1   2

1 PC SPEAKER OUT
2 + 5V

J20: SPDIF

1   2   3   4

1 SPDIF OUTPUT
2 GROUND
3 GROUND
4 SPDIF OUTPUT

1.7.4. Audio Output Jumper Settings JP1:

Audio	Setting
SPEAKER OUT with Power Amplifier (Default)	1 [o o] 4 / [o o] / 3 [o o] 6
LINE OUT without Power Amplifier	1 [o o] 4 / [o o] / 3 [o o] 6

1.8. Connectors for "YMF724 J80" and "YMF724 J81"

"YMF724 J80" includes up to thirteen internal connectors, and five external Jack Ports.
"YMF724 J81" includes up to twelve internal connectors, four external Jack Ports
and one RCA Jack.

1.8.1. External Connectors For "YMF724 J80":

J1: ....∅ 3.5mm Phone Jack for **LINE IN**
J2: ....∅ 3.5mm Phone Jack for **MIC IN**
J3: ....∅ 3.5mm Phone Jack for **LINE OUT**
J4: ....∅ 3.5mm Phone Jack for **SPEAKER OUT**
J5: ....Connector for **MIDI/JOYSTICK**

1.8.2. External Connectors For "YMF724 J81":

J1: ....∅ 3.5mm Phone Jack for **LINE IN**
J2: ....∅ 3.5mm Phone Jack for **MIC IN**
J3: ....∅ 3.5mm Phone Jack for **AUDIO OUT**
J4: ....RCA Jack for **SPDIF OUT**
J5: ....Connector for **MIDI/JOYSTICK**

1.8.3. Internal Connectors For "YMF724 J80":

J6: ....Internal connector for **LINE IN** (optional)
J7: ....Internal connector for **MIC IN** (optional)
J8: ....Internal connector for **LINE OUT** (optional)
J9: ....Internal connector for **SPEAKER OUT** (optional)
J10: ....Connector for **CD AUDIO IN** (ATAPI)
J11: ....Connector for **CD AUDIO IN** (JST)
J12: ....Connector for **AUX IN**
J13: ....Connector for **TAD/VOICE MODEM**
J14: ....Connector for **VIDEO IN**
J16: ....Connector for **PC/PCI Legacy Audio SIDEBAND SIGNAL**
J19: ....Connector for **PC-BEEP** (optional)
J20: ....Connector for **SPDIF** (optional)
CN3:...................Extension connector for **6-Channel AUDIO** (optional)

1.8.4. Internal Connectors For "YMF724 J81":

J6: ....Internal connector for **LINE IN** (optional)

J7: ....Internal connector for **MIC IN** (optional)

J8: ....Internal connector for **AUDIO OUT** (optional)

J10: ....Connector for **CD AUDIO IN** (ATAPI)

J11: ....Connector for **CD AUDIO IN** (JST)

J12: ....Connector for **AUX IN**

J13: ....Connector for **TAD/VOICE MODEM**

J14: ....Connector for **VIDEO IN**

J16: ....Connector for **PC/PCI Legacy Audio SIDEBAND SIGNAL**

J19: ....Connector for **PC-BEEP** (optional)

CN3: ....Extension connector for **6-Channel AUDIO** (optional)

JP1: ....Jumper for switching between **LINE OUT/SPEAKER OUT**

1.8.5. Audio Connectors:

J6/J7/J8/(J9):
(Option)
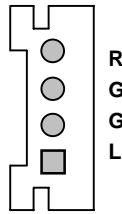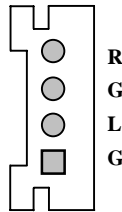
R
G
G
L

L: LEFT CHANNEL SIGNAL
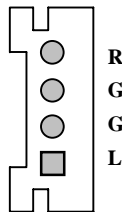G: GROUND
R: RIGHT CHANNEL SIGNAL

J10:   ATAPI
      CD-Audio

R G G L

L: LEFT CHANNEL SIGNAL
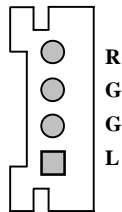G: GROUND
R: RIGHT CHANNEL SIGNAL

J11:   **J12:**   **J14:**
CD-Audio In   **AUX In**   **VIDEO In**

R   R   R
G   G   G
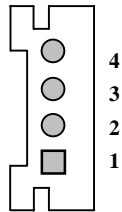L   G   G
G   L   L
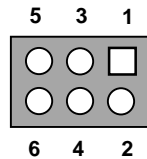
L: LEFT CHANNEL SIGNAL
G: GROUND
R: RIGHT CHANNEL SIGNAL

J13:   TAD/Voice Modem

4
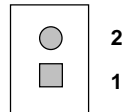3
2
1

1 PHONE IN
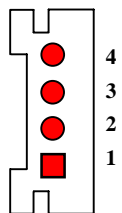2 GROUND
3 GROUND
4 MONO OUT

J16:   PC/PCI

5   3   1
6   4   2

1 PCGNT #
2 GROUND
3 N.C .
4 PCREQ #
5 GROUND
6 SERIRQ #

J19:   PC-BEEP
(Option)

2
1

1 PC SPEAKER OUT
2 + 5V

J20:   SPDIF

4
3
2
1

1 SPDIF OUTPUT
2 GROUND
3 GROUND
4 SPDIF OUTPUT

1.8.6. Audio Output Jumper Settings for "YMF724 J81":

Audio	Setting
SPEAKER OUT with Power Amplifier (Default)	3 ⊙⊙ 6 / ⊙⊙ / 1 ○○ 4
LINE OUT without Power Amplifier	3 ○○ 6 / ⊙⊙ / 1 ⊙⊙ 4

2.   HARDWARE INSTALLATION

2.1.   Handling the PCI Sound Card

WARNING:	*Static electricity can damage your equipment. Do not take the card out of its static protective bag until you are ready to work with it.*

Follow these precautions when handling the card:

- Before you open the static protective bag, touch it to a metal expansion slot cover on the back of your computer. This drains static electricity from the package and from your body.
- Do not touch any exposed printed circuitry after opening the package.
- Keep other people from touching the card. They might have a static-electricity build-up.
- Limit your movement. Movement causes a build-up of static electricity.

2.2.   Installing the PCI Sound Card

Step 1.   Turn off the system and all peripheral devices.

Step 2.   Disconnect the power cord and all peripheral devices from the system.

Step 3.   Remove the system cover and identify an unused PCI slot.

Step 4.   Unscrew the slot cover plate, plug in the PCI Sound Card, and tighten it with the screw.

Step 5.   If you have speakers or amplifiers, plug the cable into the **J3** or **J4** Jack on the back of the Sound Card.

Step 6.   Depending on what type of CD Audio cable you have connect **J10** or **J11** on the Sound Card and the Audio output at the back of the CD-ROM drive. Make sure pin 1 of **J10** or **J11** is connected to the leftmost pin of the CD-ROM Audio output.

Step 7.   Put back the system cover, reconnect the system power cord and all peripheral devices. Check and make sure all connections are correct before you turn on the system.

NOTE:	*If your mother board supports PC/PCI Legacy Audio Sideband Signal, please connect the cable of the PC/PCI Legacy Audio Sideband Signal to J16 on the PCI Sound Card in order to perform best compatibility of legacy DOS.*

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