Power Macintosh Pinouts (3/96)

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TOPIC --

This article presents the pinouts for non-AV Power Macintosh models. These
pinouts include: ADB, GeoPort, SCSI, a floppy disk drive, built-in Ethernet,
high-quality 16-bit stereo sound, and various levels of monitor support up to 21
inches, depending on the model.

DISCUSSION ---

Apple Desktop Bus (ADB)

One connector is located on the back panel of Power Macintosh computers.
It is a 4-pin mini-DIN socket.

```
Pin     Description
---     -----------
 1      Data; grounded by an open collector or pulled to +5 V through 470
 2      Power on, fed by +5 V through 100 k ; connect to pin 4 to turn on
        the system
 3      +5 V at 500 mA maximum drain; protected by a 1.25-A circuit breaker
 4      Ground return
```

Ethernet

All models of Power Macintosh contain built-in Ethernet.

```
Pin     Signal Name       Signal Description
----    -------------     --------------------------------
 1      FN Pwr            Power (+12V @ 2.1W or +5V @ 1.9W)
 2      DI-A              Data In circuit A
 3      DI-B              Data In circuit B
 4      VCC               Voltage Common
 5      CI-A              Control In circuit A
 6      CI-B              Control In circuit B
 7      +5V               +5 volts (from host)
 8      +5V               Secondary +5 volts (from host)
 9      DO-A              Data Out circuit A
10      DO-B              Data Out circuit B
```

```
11       VCC                 Secondary Voltage Common
12       NC                  Reserved
13       NC                  Reserved
14       FN Pwr              Secondary +12V @ 2.1W or +5V @ 1.9W
Shell    Protective Gnd      Protective Ground
```

Serial Ports

The back panel of all Power Macintosh models contain two I/O ports for
serial telecommunication data. Both sockets accept 9-pin plugs allowing
either port to be independently programmed for asynchronous or synchronous
communication formats up to 9600 bps. This includes AppleTalk and the full
range of Apple GeoPort protocols.

```
Pin      Name                Function
---      ----                --------
 1       SCLK(out)           Reset pod or get pod attention
 2       Sync(in)/SCLK(in)   Serial clock from pod (up to 920 Kbit/sec.)
 3       TxD-                Transmit -
 4       Gnd/shield          Ground
 5       RxD-                Receive -
 6       TxD+                Transmit +
 7       Wakeup/TxHS         Wake up CPU or do DMA handshake
 8       RxD+                Receive +
 9       +5 V                Power to pod (350 mA maximum)
```

SCSI Connection

The SCSI interface in Power Macintosh computers exists in two forms: an
internal 50-pin ribbon connector for internal devices and an external DB-25
connector for external devices.

```
    Pin Number         Description          Pin Number         Description
-------------------    -----------      -------------------    -----------
Internal    External                    Internal    External
   1           7       Ground              2           8       /DATA0*
   3           9       Ground              4          21       /DATA1
   5          14       Ground              6          22       /DATA2
   7          16       Ground              8          10       /DATA3
   9          18       Ground             10          23       /DATA4
  11          24       Ground             12          11       /DATA5
  13                   Ground             14          12       /DATA6
  15                   Ground             16          13       /DATA7
  17                   Ground             18          20       /DATAP
  19                   Ground             20                   No connection
  21                   Ground             22                   No connection
  23                   Ground             24                   No connection
  25                   No connection      26          25       TERMPWR
  27                   Ground             28                   No connection
  29                   Ground             30                   No connection
  31                   Ground             32          17       /ATN
  33                   Ground             34                   No connection
```

35		Ground	36	6	/BUSY
37		Ground	38	5	/ACK
39		Ground	40	4	/RST
41		Ground	42	2	/MSG
43		Ground	44	19	/SEL
45		Ground	46	15	/C/D
47		Ground	48	1	/REQ
49		Ground	50	3	/I/O

* A slash (/) before a signal name indicates that it is in the low state
  when active.

Floppy Disk Drive Connection

All Power Macintosh models contain one internal Apple superDrive floppy
disk drive, which supports GCR and MFM formats for 1.44 MB disks.

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	11	+5 V	+5 V
2	PH0	Phase 0 state control	12	SEL	Head select
3	GND	Ground	13	+12 V	+12 V
4	PH1	Phase 1 state control	14	/ENBL*	Drive enable
5	GND	Ground	15	+12 V	+12 V
6	PH2	Phase 2 state control	16	RD	Read data
7	GND	Ground	17	+12 V	+12 V
8	PH3	Phase 3 register write strobe	18	WR	Write data
9	NC	No connection	19	+12 V	+12 V
10	/WRREQ	Write data request	20	NC	No connection

* A slash (/) before a signal name indicates that it is in the low state
  when active.

AudioVision Monitor Support

The Power Macintosh computers provide connection to AudioVision (and other
monitors when used with an adapter cable) by means of an AudioVision HDI-45
monitor socket on their back panel.

Pin	Description	Pin	Description
1	Analog audio ground	24	Reserved
2	Audio input shield	25	Reserved
3	Left channel audio input	26	Red ground (shield)
4	Right channel audio input	27	Red video output (75)
5	Left channel audio output	28	I^2C data signal* (I-squared)
6	Right channel audio output	29	I^2C clock signal* (I-squared)
7	Reserved	30	Reserved
8	Monitor ID sense line 1**	31	Monitor ID
9	Monitor ID sense line 2**	32	Monitor ID

```
10   Green ground (shield)          33   Vertical sync signal
11   Green video output (75  )      34    Composite sync signal
12   Video input power ground       35   ADB power +5 V
13   Power for camera +5 V          36   ADB ground
14   Reserved                       37   ADB data
15   Reserved                       38   Keyboard switch
16   Reserved                       39   Reserved
17   Reserved                       40   Reserved
18   Monitor ID sense line 3**      41   Monitor ID
19   S-video input shield           42   Horizontal sync signal
20   S-video input luminance (Y)    43   Video sync ground
21   S-video input chroma (C)       44   Blue ground (shield)
22   Reserved                       45   Blue video output (75  )


 * Philips serial bus interface
** See Apple Technical Note 326
```

VRAM Expansion Cards

VRAM expansion cards are Apple cards that plug into the PDS slots of Power
Macintosh 7100/66 and 8100/88 computers. They provide an additional DB-15
monitor output.

```
Pin   Description                  Pin   Description
---   -----------                  ---   -----------
  1   Red ground                     9   Blue video signal
  2   Red video signal              10   Monitor sense 2
  3   Composite synchronization     11   Synchronization ground
  4   Monitor sense 0               12   Vertical synchronization
  5   Green video signal            13   Blue ground
  6   Green ground                  14   Horizontal synchronization ground
  7   Monitor sense 1               15   Horizontal synchronization
  8   No connection
```

Sound I/O

All Power Macintosh computers contain external stereo mini phone jacks for
sound I/O, connected through amplifiers to the AWAC chip.

```
Panel label        Description
-----------        -----------
Audio In           8 k  impedance, 2 V rms maximum, 22.5 dB gain available
Audio Line Out     37   impedance, 0.9 V rms maximum, attenuated -22,5 dB
                   (crosstalk degrades from -80 to -32 dB when the audio
                    output is connectedto 32    headphones)
```

S-Video

Power Macintosh AV Models include S-Video In/Out jacks.

NOTE:
Non-AV Power Macintosh models do not include these S-Video In/Out jacks.

```
Pin      Input Connector          Output Connector
---
1        AGND                     AGND
2        AGND                     AGND
3        Video Y (luminance)      Video Y (luminance)
4        Video C (chroma)         Viceo C (chroma)
5        I^2C clock (I-squared)*  Composite Video
6        +12V at 250 mA maximum   No connection
7        1^2C data*               No connection


* Phillips serial bus


Article Change History:
05 Mar 1996 - Made minor changes to Ethernet pinouts.
14 Jul 1995 - Added AV S-Video information.
14 Sep 1994 - Corrected pinout information for DB-15 video port.


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