Macintosh: PDS Expansion Slot Differences

Are all Processor Direct Slot (PDS) connectors in various Macintosh models different? If so, what are the differences?
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Macintosh computers use two main types of hardware expansion:
* A single processor-direct expansion slot
* NuBus expansion slots

A single PDS is used by the Macintosh SE, SE/30, LC, LC II, Portable.

Models that provide both PDS and NuBus slots are the Macintosh IIci, IIfx, Quadra 610 (smaller, 7-inch NuBus slot), 650, 700, 800, 900, and 950, the Power Macintosh 7100 series, and Power Macintosh 8100 series.

Note: The Macintosh Classic, Classic II, and PowerBook computers have no hardware expansion slots, although they do provide for internal memory expansion.

A PDS implementation brings the microprocessor address, control, and data lines, along with clock, power, and a few model-specific signals, to a single expansion connector on the main logic board. Apple uses the PDS expansion interface on compact, or small-footprint Macintosh computers such as the Macintosh SE, the SE/30, LC, or any design for which NuBus is inappropriate. The Macintosh II class of computers, such as the IIfx and the Quadras, also include a PDS connector, but their primary means of expansion is the NuBus interface.

Apple attempts to limit the number of PDS configurations available without compromising the Macintosh design, but since the PDS expansion interface is an extension of the microprocessor, the configuration of the slot connector will change whenever a newer, more powerful microprocessor is used.

68000 and 68020 PDS Interfaces
The Macintosh SE was the first Macintosh offering a PDS expansion. The SE uses a 96-pin expansion connector. The 96-pin expansion connector on the Macintosh Portable is physically identical to that of the SE, but the pinouts and signals available are different. The 68020 PDS interface in the LC is also a 96-pin connector that is physically identical to that in the SE and Portable; however, the pinouts and signals are different.

68030 PDS
Both the SE/30 and the IIfx have 120-pin connectors. Once a PDS adapter card is installed in the IIsi, it also provides a 120-pin PDS expansion connector. Whereas most of the signals on the 68030 PDS connector are the same on all models, a few signals are computer-specific. Therefore, PDS cards developed to take advantage of computer-specific signals may not work in other "030" Macintosh computers.

Macintosh LC and LC II
The 68020 PDS in the Macintosh LC uses a Euro-DIN 96-pin connector, as does the 68030 PDS in the LC II and the LC III. The PDS in LC-class models are electrically and physically identical.

The PDS used in the Macintosh 630 family is similar to that used in the LC, many PDS cards designed for the LC family will work in a Macintosh 630 class computer with the exception of the IIe Card.

68040 PDS
The 68040 PDS in the Macintosh Quadra is a 140-pin connector. The Macintosh Quadra's PDS cards aren't compatible with other Macintosh computers, and vice versa. The connectors are physically different, and the signals and logic were designed to support the 68040.

AV Macintosh computers
The 660AV and Quadra 840AV do not have a PDS connector. The 660AV has only a NuBus adapter slot.

Macintosh 630 family computers
The Macintosh 630 family, including the LC 630 and the Performa 63x computers, have three unique internal expansion slots. They include:

* One 114-pin LC compatible PDS
* One 112-pin communication port for modem and ethernet
* One 60-pin video-in slot for real time video display, capture and overlay

To verify that a particular third-party product is compatible with a specific Macintosh, we recommend you check with the supplier of that product.
Additional technical information on PDS is documented in these manuals:

Designing Cards and Drivers for the Macintosh Family
Guide to the Macintosh Family Hardware

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Additional Product Support Information