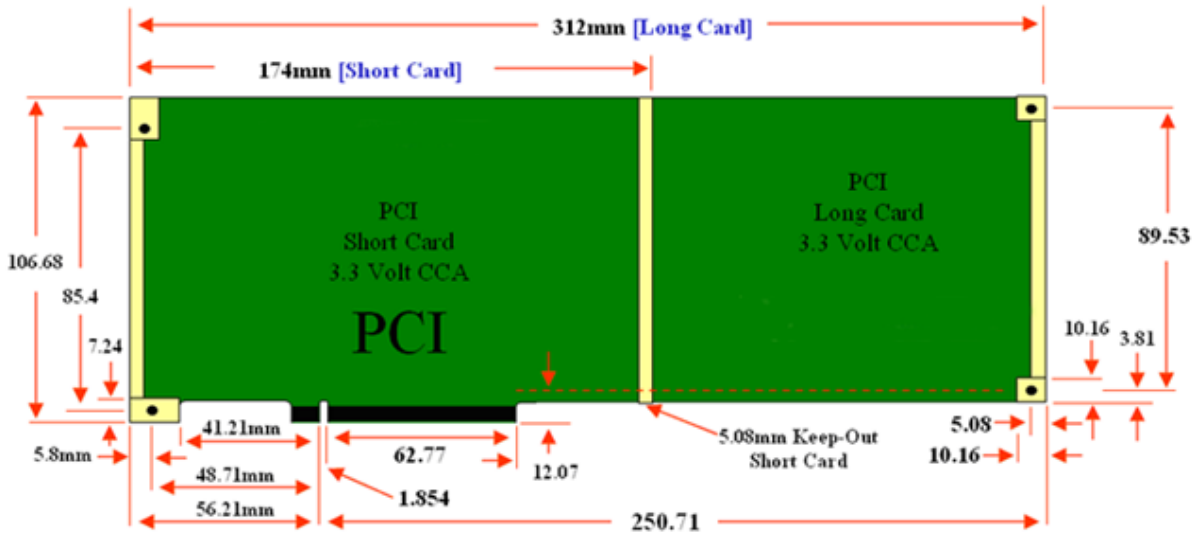
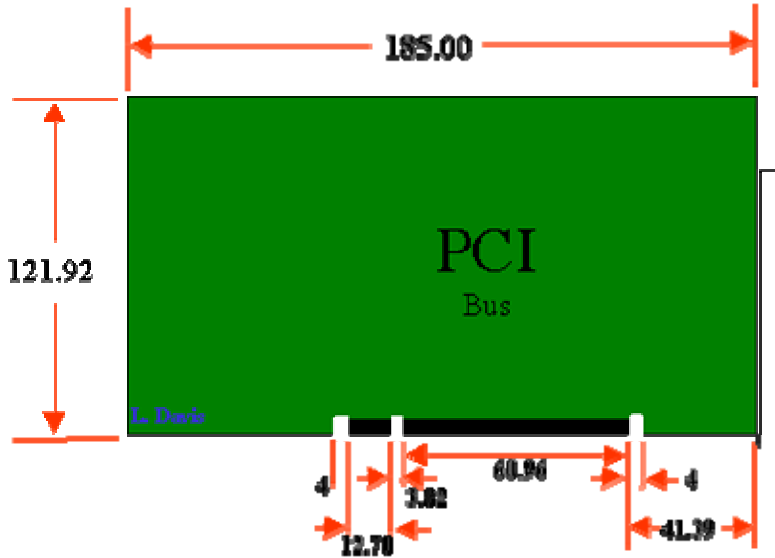
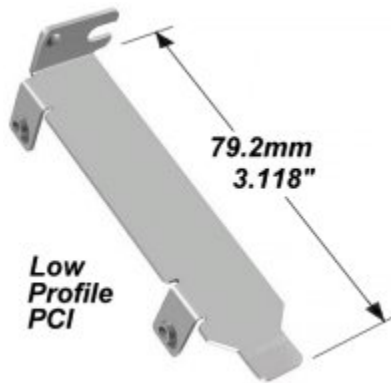


PCI - *What is it?*

The standard PCI card form factor is 107mm x 312mm [4.2" x 12.283"]. The low profile version of the PCI board ranges from 64.41mm x 119.91mm to 64.41mm x 167.64mm [2.56" x 6.6"].





The 2 U High (3.5" or 88.9mm) even though it supports four or more expansion card slots, It achieves this by using Low Profile PCI 2.2 compliant expansion cards or other available cards that are low enough to be fitted with our own Low Profile compliant brackets and provides a good compromise between available rack space, cooling issues and I/O capability.

The Low Profile PCI Card Standard - Adopted in late 2000 as an Engineering Change Notice (ECN) by the PCI SIG group <http://www.pcisig.org> has added new mechanical card height and depth specifications to the existing PCI Local Bus Specification, Revision 2.2.

Low profile PCI cards have the same signal protocols, electrical definitions, and configuration definitions as standard height PCI cards but acknowledges the fact that more and more functionality is being highly integrated into ever smaller packaged components.

Low profile PCI allows the design of smaller footprint, lower profile standalone and high density rack mount PC chassis - the so called 'Thin' server chassis - while at the same time leveraging the vast worldwide existing knowledge base of PCI hardware, firmware and software expertise and manufacturing tooling.

There are two defined card lengths for low profile PCI 2.2 - MD1 and MD2 - MD1 defines the shortest 32-bit card length available 121.79 mm and MD2 defines the maximum card length of 169.52 mm and can accommodate 32-bit or 64-bit PCI Bus connector standards.

Any Low Profile card that is longer than the MD1 definition is considered to be an MD2 card form factor.

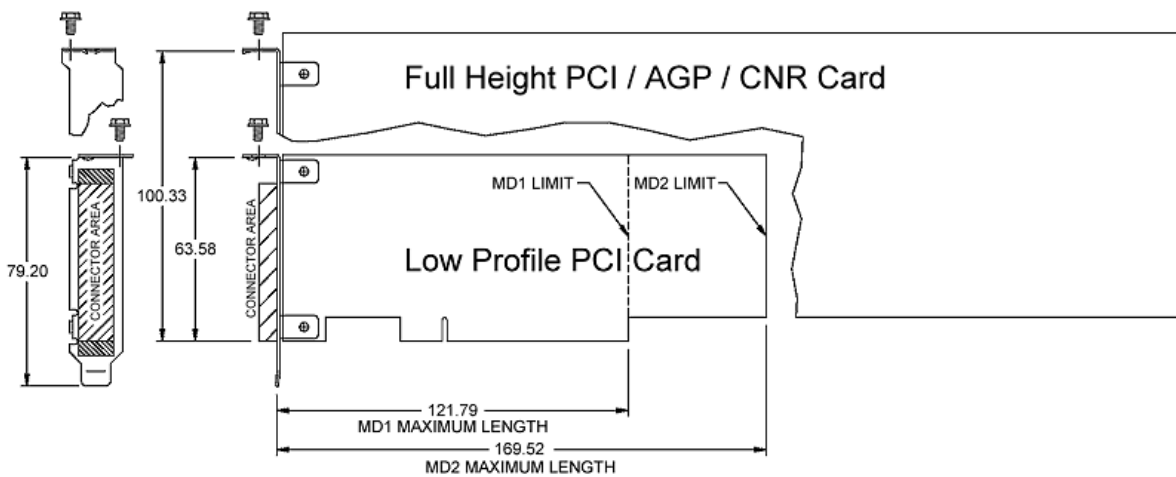


Fig 1. Full Size PCI vs Low Profile PCI 2.2

Important things to note about LPPCI:

1. The card retention screw and the offset, or dogleg, direction on pci-sig compliant Low Profile PCI brackets is on the opposite side and in the opposite direction when compared to Full Height PCI brackets. Many chassis (other than Spinserver of course) do not yet correctly support this changed screw location, and many chassis manufacturers and some card manufacturers have previously adopted a merely shortened version of the standard PCI bracket format which do not comply with the LPPCI specification, these cards are generally known as " Low Height", " 80mm" or" 70mm" cards.
2. The LPPCI spec assumes a 3.3Volt PCI slot. For those that don't know the difference - 3.3Volt 32Bit PCI bus has the polarising edge connector slot near the Bracket end of the gold plated fingers whereas the 5Volt (original) 32Bit PCI bus has the polarising slot furthest away from the bracket. This was achieved in the 3.3Volt 32 Bit bus standard by simply turning the PCI connector around end-for-end on the motherboard to prevent incorrect voltage cards from being inserted. In the 64Bit PCI world there are two totally different connectors because the added gold fingers and connector pins are always furthest away from the bracket (although it's hard to see that a 64Bit 5Volt spec will survive). The vast majority of cards are still 32 bit 5Volt and some cards are auto detecting and compatible with both 3.3 and 5Volt specs and have two cutouts for both orientations of PCI connector.
3. The Height, size and retention bracket details for Low Profile PCI as developed by Intel and adopted by PCI-SIG are almost identical with those defined by Intel for the Low Profile version of the Communication and Networking Riser (CNR) Specification.
4. Although the LPPCI PCB card height is tightly specified to be (almost exactly) at the same height limit as the LPPCI bracket, in practice there needs to be enough extra height available above the bracket for the retention screw head - around 3mm - so until all card manufacturers get their act together a card height of less than 68mm is probably acceptable in most Low Profile chassis in much the same way as the PCB's on full height PCI cards are often higher than the full height bracket (J.D.).