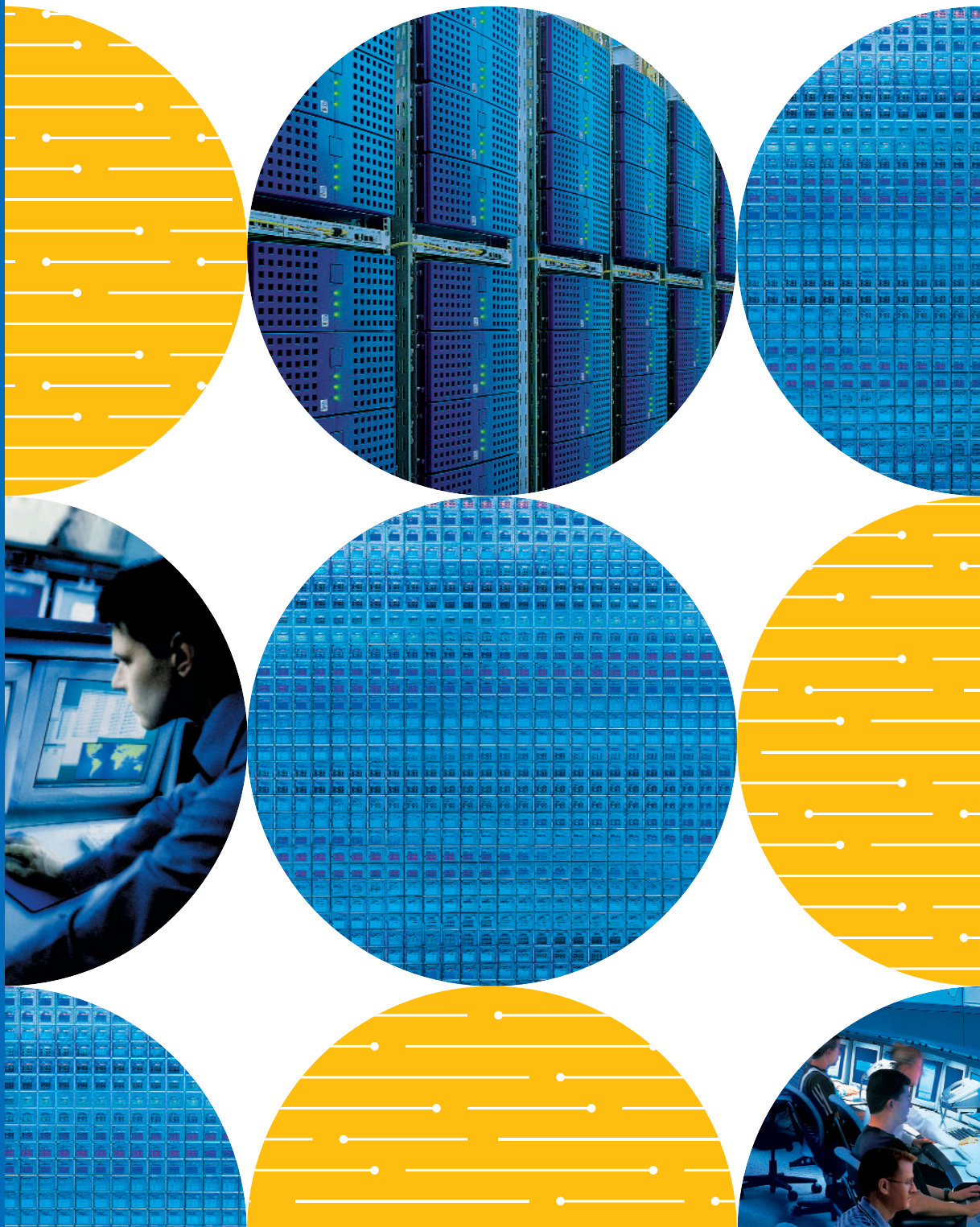
Intel® PCI Bridge Overview

Advanced PCI Connectivity Solutions from Intel

Intel in Communications



PCI-PCI Bridge Overview

Designed specifically for embedded applications, Intel® PCI Bridges let designers add more PCI devices, or more PCI option card slots, than a single PCI bus can support. This allows users to increase the throughput of their data in a variety of data-intensive server, workstation, and high-end PC and embedded platform applications including networking, communications, data storage, image/graphics—across PCI, PCI-X, or PCI Express* I/O architectures.

The Intel® 41210 Serial to Parallel PCI Bridge is the newest member of the PCI family, and joins the Intel® 31154 133 MHz PCI Transparent Bridge (PCI-X v 1.0b) along with our popular transparent and non-transparent 64-bit 33 MHz and 66 MHz standard PCI Bridges. Designed for PCI Express connectivity, the 41210 transparent bridge provides developers with a highly effective and convenient bridging solution between the latest serial I/O PCI Express enabled host systems and PCI-X/PCI parallel bus architecture devices by enabling porting of HBAs or add-in card designs with PCI or PCI-X devices for direct insertion into higher bandwidth x4 or x8 PCI Express expansion slots. In addition, the 41210 provides two PCI-X 133 MHz downstream bus segments for high-bandwidth (1 GBs per segment) data-transfer capability or for high-density/multi-device attach HBAs and add-in cards running at PCI-X and/or PCI speeds. The addition of the 41210 and Intel® 31154 to the traditional PCI Bridge family provides a full range of fast, highly capable, flexible, and reliable bridging solutions that span across the industry's PCI, PCI-X and PCI Express standard architectures.

Intel offers both transparent and non-transparent PCI Bridges. Non-transparent Bridges differ from standard, transparent PCI-to-PCI Bridges by allowing independent mapping of primary and secondary bus address spaces—a key benefit when developing intelligent subsystems with separate memory maps.

The recently added member of the PCI Bridge family is the fast and efficient Intel 31154 PCI-X Bridge. Running at 133 MHz and 64-bits wide, the Intel 31154 provides a high-performance parallel PCI bus for high-performance applications. The PCI-X standard, and additional Intel optimizations, make the new Intel 31154 capable of delivering a significant improvement in bus performance, compared with the conventional (32-bit, 33 MHz) PCI bus.

Part Description	Intel® 21152BB	Intel® 21154AE	Intel® 21154BE	Intel® 21555AB
PCI Width	32-bit	64-bit	64-bit	64-bit
Max Clock	33 MHz	33 MHz	66 MHz	33 MHz
CLK, Req#, GNT# Pins	4 Sets	9 Sets	4 Sets	9 Sets
Package	160 PQFP	304 PBGA	304 PBGA	304 PBGA
PCI Revision	2.3	2.3	2.3	2.3
JTAG	No	Yes	Yes	Yes
GPIO	No	Yes	Yes	No
Primary Write Buffer	88 Bytes	88 Bytes	88 Bytes	256 Bytes
Primary Read Buffer	72 Bytes	72 Bytes	72 Bytes	256 Bytes
Secondary Write Buffer	88 Bytes	152 Bytes	152 Bytes	256 Bytes
Secondary Read Buffer	72 Bytes	152 Bytes	152 Bytes	256 Bytes

Features	Benefits
High-performance PCI	■ Intel® PCI Bridges are optimized for the highest levels of PCI performance. Both transparent and non-transparent bridges provide optimum performance for building a wide array of high-throughput products, such as storage and communication adapter cards and inter-processor domain communication devices.
A wide range of products	■ Intel PCI Bridges span the entire PCI spectrum, giving developers options for any PCI application. The Intel PCI Bridge product line supports 32- or 64-bit bus widths, 33, 66 and 133 MHz parallel bus frequencies; 2.5 GBs x4 and x8 PCI Express* ports and both transparent and non-transparent modes of operation depending on the specific bridge.
Intel quality and reliability	■ Intel PCI Bridges are manufactured by Intel to meet the most demanding quality and reliability standards. Our products are manufactured around the world using the most advanced semiconductor manufacturing processes.
Comprehensive set of development tools	■ Development boards, application notes and thorough documentation are available to support developers of PCI applications using the Intel PCI Bridges.

Why Intel?

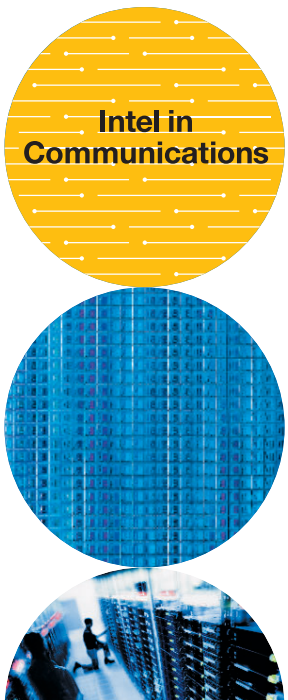
Choosing Intel for PCI Bridges helps developers benefit from the industry leader in PCI Bridges and the world's largest manufacturer of semiconductors. Intel has shipped more than 20 million PCI Bridges to developers around the world. Intel quality and reliability are world renowned to ensure that every PCI Bridge operates to the toughest specifications.

From 33 MHz/32-bit bridges to 64-bit/133 MHz PCI-X to PCI-X and PCI Express to PCI-X Bridges, Intel has your choice for any PCI application.

What Applications?

Storage (RAID cards, ROMB, MROMB, FAS, SAN, NAS), Telematics, Security, NICs, Printing/Imaging, Graphics, iSCSI HBA, Control Plane Processing, Customer Premise Equipment, general embedded applications, telecommunications equipment, and adapter cards and motherboards.

Intel® 21555BB	Intel® 31154	Intel® 41210
64-bit	64-bit	64-bit
66 MHz	133 MHz	133 MHz
9 Sets	9 Sets	6 Sets/PCI-X bus
304 PBGA	421 PBGA	521 FC3BGA
2.3	PCI-X 1.0	PCI Express* 1.0a/PCI-X v 1.0b
Yes	Yes	Yes
No	Yes	No
256 Bytes	8K Bytes	1K Bytes
256 Bytes	8K Bytes	1K Bytes
256 Bytes	8K Bytes	1K Bytes
256 Bytes	8K Bytes	1K Bytes



Intel Access

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