

LINK

Formerly LAVA News

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- Fill out our survey for a chance to **WIN** great prizes.



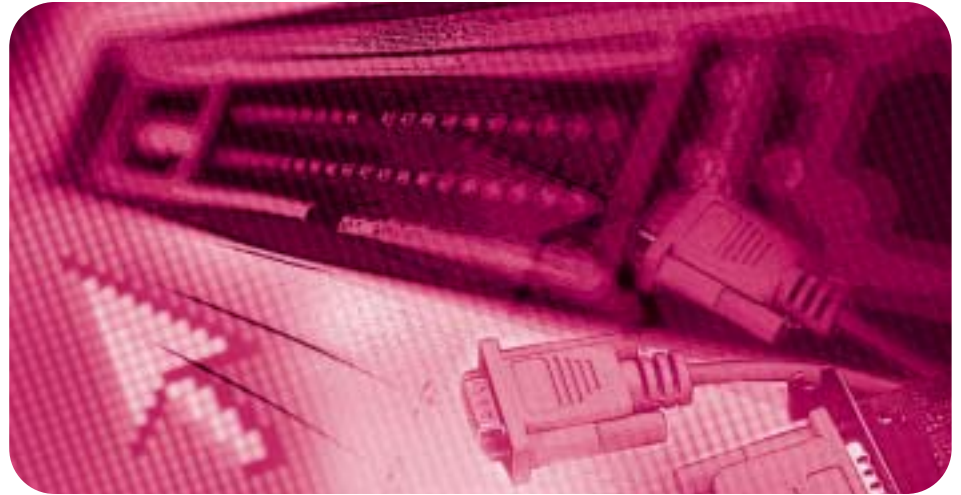
Plug and Play Solving Resource Allocation Puzzles

What is Plug and Play?

A lot of confusion floats around the term "Plug and Play." The words "plug and play" themselves might cause this confusion: they suggest simplicity and immediate enjoyment (with all sorts of subliminal connotations). On the other hand, dealing with Plug and Play devices has led some to give it an alter-ego second name: "Plug and Pray." The reality lies between these extremes.

The Plug and Play specification was developed by Microsoft, with cooperation from Intel and other hardware manufacturers, and made its debut with Windows 95. At the time the concept was new to the PC world, although Macintoshes had been plug and play systems for some time. Meanwhile, PC users were dealing with the complications of adding and configuring new devices on the ISA bus. These difficulties included devices competing for the same system interrupts and addresses. The more devices added, the more frequently problems appeared. Plug and Play systems, along with the PCI bus being developed at the same time, provided a better medium for conveniently attaching devices.

Simply put, Plug and Play requires a system to automatically assign resources to devices being added to that system. "Automatically," however, doesn't mean that nothing needs to be done to make a Plug and Play device install. It only means that the device can be installed without the user needing to change jumper switches on either the device or the system board. Instead, the system will detect the identity of the new device, and assign (sometimes with the user's help) the resources it needs.



To achieve the minor miracle of Plug and Play, every Plug and Play device is uniquely identified by the bus it uses. In the case of PCI devices, two built-in numbers tell the system about the device: a Device ID number and a Vendor ID number. Device IDs tell the system the identity of the port or ports on the card. The Vendor ID tells the system who manufactures the card. By the way, Lava's PCI Vendor ID is 1407—every Lava PCI serial and parallel card has this number embedded in its firmware. Sometimes manufacturers sell products under various brand names; however, the vendor's ID will remain the same. On the other hand, if the PCI vendor ID is not 1407, the card is not a Lava PCI card.

Plug and Play systems must also dynamically allocate resources: when a Plug and Play device is changed or added, the system must be able to automatically assign, disable, or reallocate resources, according to the rules of the device's bus. If a conflict exists between devices, the system must be capable of disabling a device to prevent the system from hanging or stalling. The system will either completely disable the built-in port or device, allowing the expansion card to override the system-based device, or it will let both ports remain active while resolving

conflicts by relocating the resources of one or both devices.

Among PCs, the PCI bus has contributed greatly to the adoption of Plug and Play capability. Newer bus technologies like USB and FireWire build on Plug and Play's ease of use by adding support for daisy-chaining and hot plugging, making peripheral attachment easier than ever.

Misconceptions about Plug and Play

Plug and Play devices are not automatically hot swappable or hot pluggable. Hot swapping and hot plugging involve changing or adding a device while the computer system using it remains in operation. USB and IEEE 1394 (or FireWire), while Plug and Play technologies, also support hot swapping and hot plugging. By contrast, PCI Plug and Play tests the system on boot-up for Plug and Play devices, and assigns resources at that time: as a consequence, completing the installation of a PCI Plug and Play card requires the system to be rebooted.

Also, Plug and Play technology isn't supported in all hardware and operating systems. To be Plug and Play compatible, a system needs its motherboard, its BIOS, its operating system,

(continued from page 1)

and its peripheral hardware all to be Plug and Play compatible.

Older BIOSes and operating systems may not support Plug and Play operation and may need to be updated for Plug and Play hardware to work.

Plug and Play is not perfect

Occasionally, a Plug and Play device will not select its resources in a way that works with a user's hardware or software. For example, making Plug and Play devices work with DOS software that is coded to look for specific devices in specific configurations can be difficult. When the software cannot adapt to the Plug and Play hardware settings, the user needs to intervene. Sometimes, editing the registry will enable the Plug and Play settings to be reconfigured. At other times, an ISA card with jumper settings can be used to override Plug and Play setups.

Whenever you experience difficulty installing Lava cards, don't forget to check www.lavalink.com or call our free-of-charge technical support line. Lava's strong technical support team is equipped to help.

COMDEX Fall in Review

This year's COMDEX Fall in Las Vegas was another successful show for Lava. Although the show organizers were security-conscious as never before, all went smoothly. Attendance at this year's show was, as expected, lower than in recent years for several reasons. On the other hand, the serious companies were all there transacting serious business. The absence of less-serious, tire-kicking visitors was noticeable.

Firms showing and investigating the newest technologies were as active as ever. The current strong industry interest in USB 2.0 and storage solutions drew many to the Lava booth to see the Kazan USB 2.0 IDE drive enclosure, as well as the solid lineup of serial, parallel, USB, and FireWire ports for which Lava is known.

Lava PnP Products

Lava's Plug and Play products have been designed by our in-house engineering team to be true Plug and Play. We often get comments from our customers telling us that Lava cards actually work, so there is no need to Plug and Pray.

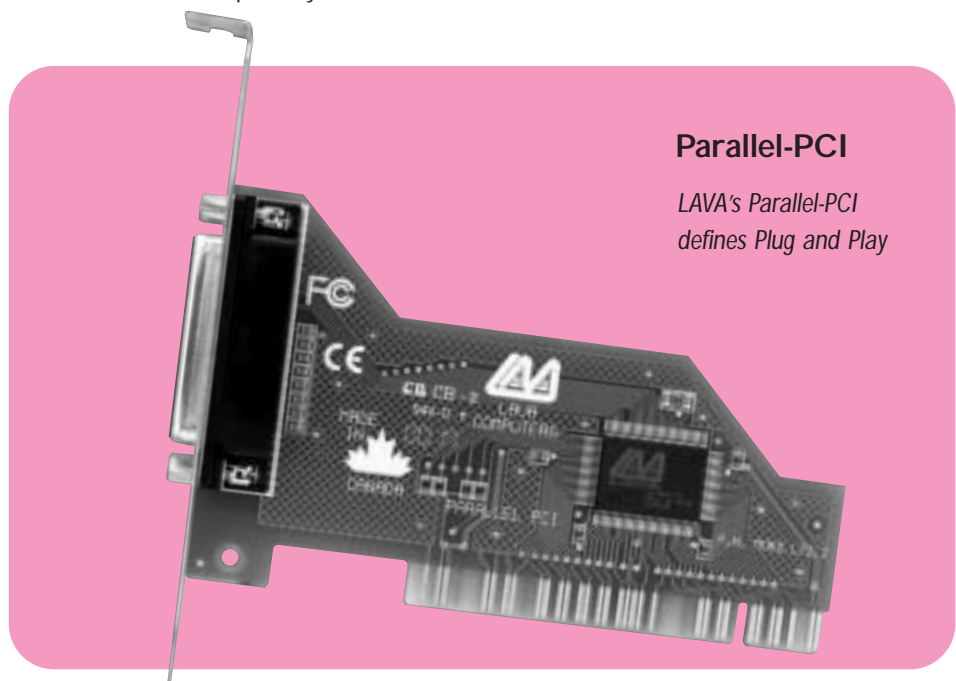
Lava's Plug and Play products are: (see pg. 4 for more details)

- LavaPort-650
- LavaPort-PCI
- LavaPort-Plus
- LavaPort-Quad
- SSerial-PCI
- SSerial-PCI/LP
- DSerial-PCI
- DSerial-PCI/LP
- SP-PCI
- 2SP-PCI
- Quattro-PCI
- Octopus-550
- Parallel-PCI
- Parallel-PCI/LP
- Dual Parallel-PCI
- FireHost
- FireDrive 1394 IDE Drive Enclosure
- IEEE 1394 PC-Card
- IEEE 1394-to-IDE Drive Controller
- USB 1.1 Host
- USB 2.0 Host
- Kazan USB 2.0 IDE Drive Enclosure
- SPH-USB 1.1 Hub

Lava's Parallel-PCI: The Quintessential Solution for Plug and Play Parallel Port Expansion

Keith Sutton had a simple problem: he had purchased a new scanner and now needed a second parallel port on his system. He got a simple and cost-effective solution — the Lava Parallel-PCI. "I've had Plug and Play cards before, but they didn't seem to play after I'd plugged them in," he remarks. Keith found installing the Parallel-PCI card was easy and trouble-free. He installed the card in a free PCI slot in his system, and turned it on. Windows detected the new card and started the "New Hardware Detected" wizard — the Plug and Play part of the whole business. Keith pointed the system to the drivers on the Lava Installation Disk and the drivers were installed. After rebooting, he had the parallel port he wanted.

"The Lava Parallel-PCI changed my perception of Plug and Play cards. It went in without a hitch, and hasn't taken any of my attention since then. The whole idea of plug and play, as far as I'm concerned, is installing the card and not giving it another thought." And, with the Lava Lifetime Warranty behind his new Parallel-PCI, he probably never will.



Parallel-PCI

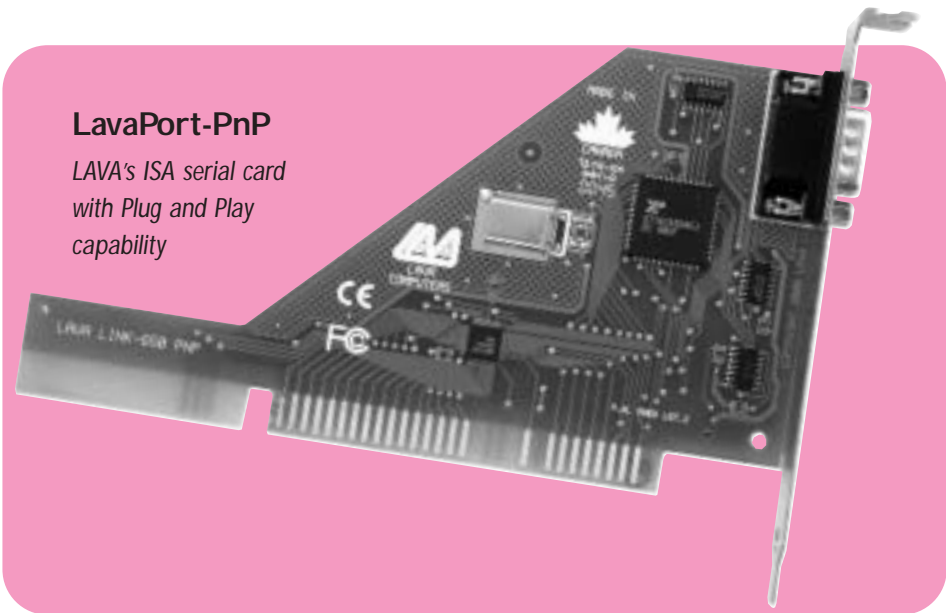
LAVA's Parallel-PCI defines Plug and Play

Fast and smart ISA PnP!

Before you leave with the idea that PC Plug and Play begins with the PCI bus, it is worth looking at Lava's ISA Plug and Play product: the LavaPort-PnP. As most PCI-based systems also support Plug and Play on their ISA bus, unused potential often exists. The LavaPort-PnP has a single 16650 UART serial port, giving 460.8 kbps of speed, along with the convenience of Plug and Play configuration. It has the same capabilities as the LavaPort-650 PCI serial card, but fits in an ISA slot. Seen another way, it has the same capabilities as a LavaPort-ISA card, but without the need for jumper configuration.

Why would you want Plug and Play ISA when Plug and Play PCI can be so easily found? A couple of reasons. First, the LavaPort-PnP does not give up any speed to PCI serial cards, despite the fact that the ISA bus is a slower bus than the PCI bus. It, like all Lava's 16650 UART serial cards, is fast enough to remove bottlenecks when using ISDN and V.90 modems.

Second, the LavaPort-PnP can take advantage of unused motherboard real estate. Once a system's PCI slots are filled with sound cards, video cards, USB host adapters, and other PCI expansion cards, what can be done? On many systems, ISA slots are left begging to be used, and the LavaPort-PnP is the ideal upgrade without compromising speed or convenience.



LavaPort-PnP

LAVA's ISA serial card
with Plug and Play
capability

Profile File

Northwest Computer Accessories, founded in 1987, is one of the premier computer accessory wholesalers on the west coast. A family owned business, they cater to both the individual dealer and the large corporation. With over 3,000 computer products in their warehouse, including a broad range of Lava products, they offer a selection that is unmatched in the accessory marketplace.

NWCA's high standard of customer service, as well as their knowledgeable sales and purchasing staff, keep them on the cutting edge of an ever-changing industry. NWCA launched its new real-time website in November.



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Get caught in the Lavalanche & WIN!

You may get caught by the Lavalanche of prizes
from Lava for completing our survey!

Getting snowed in has never been better!

We at Lava believe that gifts are great, but an avalanche of gifts is even better. That is why we would like you to get caught in the Lavalanche of Lava prizes. How do you get in the way of the Lavalanche? Simply fill out the Lavalanche survey, forward it to Lava, and you may **WIN!**

For more details please see the attached survey or visit
www.lavalink.com/lavalanche.html



PRODUCT SUMMARY

PCI Serial and Parallel Cards

LavaPort-650	Single 9-pin serial, 16650 UART
LavaPort-PCI	Dual 9-pin serial, 16650 UARTs
LavaPort-Plus	Dual serial (9 & 25 pin), 16650 UART + single EPP parallel
LavaPort-Quad	Four-port 9-pin serial, 16650 UART, IRQ sharing
SSerial-PCI	Single 9-pin serial, 16550 UART
SSerial-PCI/LP	Single 25-pin serial, 16550 UART, low profile
DSerial-PCI	Dual 9-pin serial, 16550 UARTs
DSerial-PCI/LP	Dual 9-pin serial, 16550 UARTs, low profile
SP-PCI	Single 9-pin serial, 16550 UART + single bi-directional parallel
2SP-PCI	Dual serial (9 & 25-pin), 16550 UART + single EPP parallel
Quattro-PCI	Four-port 9-pin serial, 16550 UART, IRQ sharing
Octopus-550	Eight-port 9-pin serial, IRQ sharing
Parallel-PCI	Single EPP parallel
Parallel-PCI/LP	Single EPP parallel, low profile
Dual Parallel-PCI	Dual EPP parallel

IEEE 1394 (FireWire®) Devices

IEEE 1394 FireDrive	Hard drive enclosure with FireWire®-to-IDE interface
IEEE 1394 FireHost	Dual IEEE 1394 ports, fits in PCI slot
IEEE 1394 FireHost/LP	Dual IEEE 1394 ports, fits in PCI slot, low profile
IEEE 1394/IDE Controller	FireWire®-to-IDE hard drive interface
IEEE 1394 PC-Card	Single IEEE 1394 port, fits in PCMCIA slot

USB 2.0 and 1.1 Devices

USB 2.0 Host Adapter	Two/four USB ports, 480 Mbps, fits in PCI slot
USB 2.0 Kazan	Hard drive enclosure with USB 2.0-to-IDE interface
USB 1.1 Host Adapter	Dual USB ports, 12 Mbps, fits in PCI slot
SPH-USB 1.1 Hub	Three powered USB ports, parallel port, serial port, connects to USB

ISA Serial and Parallel Cards

LavaPort-ISA	Single 9-pin serial, Com 1-4 16650 UART, IRQ 2/3/4/5/10/11/12/15
LavaPort-PnP	Single 9-pin serial, plug & play
SSerial-550	Single 25-pin serial, Com 1-4, 16550 UART, IRQ 3/4/5/7
DSerial-550	Dual 9-pin serial, Com 1-4, 16550 UART, IRQ 2/3/4/5/7/10/11/12/15
2SP-550	Dual 9-pin serial, Com 1-4, 16550 UART + single bi-dir. parallel, LPT 1-2
Parallel	Single bi-directional parallel port, LPT 1/2/3, IRQ 5/7
Parallel-ECP/EPP	Single ECP/EPP parallel, LPT 1-6, IRQ 2/3/4/5/7/10/11/12

Specialty Cards

RS422-550	Dual 9-pin serial, 16550 UART, RS422 pinout
8255-PIO	8255 PIO interface card

With this issue, LAVA News becomes LINK. In it, we employ a more readable and pleasing design. As always, we'll strive to provide informative and relevant material about Lava, its products, and the world of I/O technology.



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