SerialDMA 2.0.2 Read Me (11/95)

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TOPIC ---

This article contains the Readme file for the SerialDMA 2.0.2 software.

DISCUSSION ---

What is the SerialDMA 2.0.2 extension?

Version 2.0.2 of this extension is simply version 2.0 of this extension plus a couple of additional fixes and support for the new PCI Power Macintosh computers (7200, 7500, 8500, and 9500). Version 2.0 of this extension was a complete rewrite of the DMA serial driver which originally accompanied the Centris 660AV, Quadra 660AV, Quadra 840AV, Power Macintosh 6100/60, Power Macintosh 6100/66, Power Macintosh 7100/66, Power Macintosh 7100/80, Power Macintosh 8100/80, Power Macintosh 8100/100, and Power Macintosh 8100/110. It also supports the various Performa and Apple Workgroup Server products derived from the models listed. The SerialDMA driver is a replacement for the standard set of Macintosh serial device drivers referred to by their driver names: ".AIn," ".AOut," ".BIn," and ".BOut." SerialDMA is applicable only to the set of Macintosh models which incorporate DMA channels servicing the standard Z8530 Serial Communications Controller.

The original serial driver for these products suffered from occasional system hangs, communications timeouts, poor communications performance, and various other glitches. The new SerialDMA 2.0.2 driver corrects these problems and provides the targeted products with a serial driver that should exceed the performance and reliability standards for serial communications on the Macintosh platform.

Installing SerialDMA 2.0.2 extension

The SerialDMA extension requires System 7.5 or later. To install this extension, drag it onto the System folder of your boot drive (the Finder will remind you that extensions need to be placed in the Extensions folder; click OK and the SerialDMA extension will be copied). After the SerialDMA extension is in your System folder, you need to restart your Macintosh.

What the SerialDMA 2.0.2 extension provides

The following problems have been eliminated to improve functionality and compatibility:

• The SerialDMA driver will no longer mysteriously "lock up" and cease processing new input requests as a result of interrupt synchronization problems during chained reads.

• The SerialDMA driver will no longer fail to complete a transmission correctly on a Power Macintosh. This fixes a longstanding driver bug referenced in the GlobalFAX software release notes, since it had a highly detrimental effect on that FAX software. This problem could have affected any sort of file transfer using hardware or XOn/XOff handshaking.

• Handshaking now works reliably, especially XOn/XOff handshaking. This will eliminate numerous scenarios where customers were seeing gratuitous overrun errors.

• Driver performance and responsiveness is now more than acceptable for small input requests. The original driver highly favored large transfer performance over small transfer performance, resulting in unacceptable performance degradation for a large number of customers.

• It is now possible once again to make a synchronous I/O request of the SerialDMA driver from a VBL, Time Manager task, or other interrupt task. This improves compatibility with some products, but should not be considered an endorsement of this unsupported technique.

• Break conditions are now handled correctly, producing results consistent with what would be seen in a non-DMA serial driver.

• A bug was fixed allowing DTR to remain negated when the driver is closed. Formerly it was possible for DTR to become asserted when closing the driver, even when the client software requested otherwise.

• A bug in the algorithm used by older versions of SerialDMA for setting some baud rates could give improper results. This has been fixed in SerialDMA 2.0.2. This bug affected Quadra 840AV and 660AV CPUs only.

• A bug in older versions of SerialDMA that caused problems printing to StyleWriters has been fixed in SerialDMA 2.0.2. This bug affected Power Macintosh 7200/7500/8500/9500 CPUs only.

The following enhancements improve performance and reliability:

• The SerialDMA driver is now native for Power Macintosh. This driver grew in size very little as a result of RISC code expansion. On 68040 models, SerialDMA is now compiled with a much better optimizing compiler resulting in significantly smaller and faster code. Simplifications in the basic driver design also reduce code size while improving reliability.

• SerialDMA 2.0.2 takes fuller advantage of the power of DMA to offer 115,200 and 230,400 baud serial data streams. (Driver clients should operate within certain efficiency guidelines to ensure that they do not become bottlenecks at

these high data rates.)

• SerialDMA 2.0.2 uses a more efficient hardware abstraction interface to support different Macintosh models with a minimum of administrative overhead. This also improves driver reliability.

• DMA receive channel management has been significantly improved, resulting in almost no possibility of hardware overrun errors and allowing higher data rates with higher reliability. Error reporting is more robust.

• DMA transmit channel management has been improved for some DMA architectures, reducing overhead by use of a dump-and-run DMA strategy.

• The mechanism for implementing XOn/XOff handshaking is more sophisticated, and results in better performance with less system overhead.

Note:
There is a known problem on Power Macintosh 7200, 7500, 8500, and 9500 with the Serial Port Arbitrator that ships as part of AppleTalk Remote Access. The problem can cause a crash at boot time if both SerialDMA and Serial Port Arbitrator are present. Serial Port Arbitrator should be removed from your System folder to avoid this conflict.

Support Information Services

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