



Release Notes 2.5.5r2

EDM02.05-10r2



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## **1.0 PREFACE**

**Introduction** These release notes provide important supplemental information about Endace Measurement Systems' software driver package 2.5.5r2 for Linux/FreeBSD and Windows.

The notes contain the latest information about the features supported in this release.

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### **1.1 Important information about 2.5.5r2**

**Description** The 2.5.5r2 release is an update to the 2.5.5r1 release. It contains updated firmware for a number of cards and fixes to customer issues.

- Known Issues**
1. IP Filtering for the DAG 3.8S and DAG 4.3S cards are currently not supported under Windows. Issues may also be seen when using the IP Filter under Windows while swapping the filters. The snort compiler is currently not available for Windows.
  2. There is a known issue on Debian based systems where user built DAG kernel modules are not installed into the correct path by 'make install'.

This is a Debian kernel configuration related issue. The kernel modules can be moved into their correct locations manually. The command 'depmod -aue' is required to be run after moving the kernel modules. This affects Debian kernels above 2.6.8.

**Important Bugfixes** This release includes changes to the PCI core which fixes a number of outstanding customer issues related to systems based on PCI Express motherboards and /or multi-processor based systems.

The issues reported by customers manifest themselves in a number of ways including system lockups, problems while using IP filtering firmware and reading zero length packets.

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## 1.1 Important information about 2.5.5r2, continued

### General Firmware updates

In this release the DAG 3.7T, DAG3.8S, DAG 4.3S, DAG4.3GE, and DAG6.2S firmware has been updated. The IP Filtering firmware and ATMR firmware has also been updated to include a number of internal updates and bugfixes. Customers using these cards are advised to upgrade to the 2.5.5r2 release.

In this release HDLC transmit is not supported on the DAG 3.7T.

## 1.2 Supported Products

**Description** The 2.5.5r2 release supports the following Endace products.

<b>DAG</b>	<b>Link Type</b>	<b>Ports</b>
3.5S	OC3c/12c ATM/PoS	1 ch
3.6D	DS3 ATM	2 ch
3.6ET/P	10/100 Ethernet	2 ch
3.6GE	10/ 100/Gigabit (Copper) Ethernet	1 ch
3.7G	10/100/1000 Copper Ethernet	2 ch
3.7T	E1/T1 HDLC/ATM	16 ch
3.8S	OC3c/12c ATM/PoS	2 ch
4.2S	OC48c ATM/PoS	2 ch
4.2GE	Optical Gigabit Ethernet	2 ch
4.3S	OC48c ATM/PoS	1 ch
4.3GE	Optical Gigabit Ethernet	2 ch
6.1SE	OC192c/10G Ethernet	1 ch
6.2SE	OC192c/10G Ethernet	1 ch

## **2.0 LINUX/FREEBSD**

**Introduction**      The various operating system issues relating to use of Endace DAG cards.

**In this section**      This section covers the following topics of information.

- Linux
- FreeBSD 4.x

### **2.1 Linux**

#### ***2.1.1 Tested Linux Distributions***

**NOTE:**              This release has been tested using the Debian ‘Sarge’ Linux distribution and Redhat Enterprise Linux 3.0. Redhat Enterprise Linux 4.0 has not been tested. Issues reported from customers using RedHat 4.0 and Fedora Core 3 have now been resolved.

#### ***2.1.2 Redhat RPMs Available***

**FEATURE:**          RPM format packages of the 2.5.5r2 release are available for Redhat Enterprise Linux 3.0.

### **2.2 FreeBSD 4.x**

**NOTE:**              No issues to report at time of release.

## **3.0 MICROSOFT WINDOWS**

**Description** Microsoft Server 2000, Microsoft Windows XP and Microsoft Windows 2003 Server are now supported.

**In this chapter** This chapter covers the following sections of information.

- WinPCAP Capture API now Supported
- Source not Supplied
- dagconvert and dagfwddemo Tools Require WinPCAP Library

### **3.1 WinPCAP Capture API now Supported**

**NOTE:** DAG enabled WinPCAP is now available from the Endace Website. Only one WinPCAP application can be run on each DAG card at once. The native DAG API is also available for data capture.

### **3.2 Source not Supplied**

**Description** Unlike the Linux/FreeBSD release, source code for the Windows driver and libraries is not supplied. Source code for some tools is provided as examples of the use of the DAG API.

These example tools include `dagsnap` for disk capture, `dagbits` for real-time packet processing, `dagflood` for packet trace transmission, and `dagfwddemo` for inline packet inspection and transmission.

### **3.3 dagconvert and dagfwddemo Tools Require WinPCAP Library**

**NOTE:** To use the supplied `dagconvert` tool to convert DAG ERF format packet traces into `pcap` format the WinPCAP package must be installed. Note the Ethernet program can also read DAG ERF format natively and convert file formats. To build `dagfwddemo` from source the WinPCAP library must be installed, including the files `pcap.h`, `pcap-stdinc.h`, `net/bpf.h`, and `wpcap.lib`.

## **4.0 GENERAL NOTES**

**Introduction** There are a number of features and general issues that affect all Endace DAG cards as described in the following sections of information.

The general issues that affect all Endace DAG cards include transmit capable firmware used by default, variable and fixed length packet capture, and the PCI/PCI-X bus speed detector.

**In this section** This section covers the following topics of information.

- Transmit Firmware Now Used by Default
- NTP must now be running by Default
- Variable and Fixed Length Packet Capture
- PCI/PCI-X bus Speed Detection
- DAG Cards Heating During Operation
- Coprocessor Expansion Connection
- Small Form Factor Pluggable Transceiver Introduction

### **4.1 Transmit Firmware Now Used by Default**

**NOTE:** The 2.5.5r2 software release supports packet transmission for the DAG 3.7G, 3.8S, 4.3S and 4.3GE. The standard receive-only firmware previously supplied for these cards has been replaced in this release with firmware that can both transmit and receive.

This change does not affect receive-only applications. See the relevant user manuals and packet transmit documentation for more details.

### **4.2 NTP must now be running by Default**

**NOTE:** If you are synchronizing the DAG card using GPS it is now a requirement to have NTP running on the machine that the DAG card is installed in.

### **4.3 Variable and Fixed Length Packet Capture**

**NOTE:** This release includes support for variable length (*varlen*) and fixed length (*novarlen*) packet capture for the DAG 3.6E(T/P), 3.6GE, 3.7G, 3.7T, 3.8S, 4.3S and 4.3GE products.

The DAG 6.1S and 6.2S provide variable-length capture capability (*varlen*) but not fixed-length capture (*novarlen*).

## 4.4 PCI/PCI-X bus Speed Detection

**NOTE:** For products that support operation at multiple bus speeds the DAG configuration programs (*dagthree*, *dagfour*, and *dagsix*) report the speed at which the host PCI/PCI-X bus is operating.

The PCI/PCI-X compatibility of Endace products is indicated in the following table.

DAG	Link Type	Type	Width	Supported Bus Speeds
3.5S	OC3/12c	PCI	32b	33MHz
3.6D	DS3 ATM	PCI	32b	33MHz
3.6ET/P	10/100 Ethernet	PCI	32b	33MHz
3.6GE	10/100/Gigabit Ethernet	PCI	32b	33MHz
3.7G	10/100/Gigabit Ethernet	PCI	32b/64b	33MHz
3.7T	E1/T1	PCI	32b	33MHz
3.8S	OC3/12c	PCI-X	64b	66MHz
4.2S	OC48c	PCI	64b	66MHz
4.2GE	Gigabit Ethernet	PCI	64b	33/66MHz
4.3S	OC48c	PCI-X	64b	66/100/133MHz
4.3GE	Gigabit Ethernet	PCI-X	64b	66/100/133MHz
6.1SE	OC192/10GE	PCI-X	64b	66/100/133MHz
6.2SE	OC192/10GE	PCI-X	64b	66/100/133MHz

## 4.5 DAG Cards Heating During Operation

**NOTE:** The DAG cards may become hot during normal operation. Certain devices on the DAG circuit board can reach temperatures of 65°C (150°F) or more during normal operation.

This includes periods when no network equipment is connected. Allow the card time to cool before handling.

## 4.6 Coprocessor Expansion Connection

**NOTE:** The DAG 3.8S, 4.3S and 4.3GE provide an expansion connector suitable for use with the Endace SC-range of coprocessors. This delicate high-bandwidth connector is protected by a plastic cover which should not be removed in normal operation.

Keeping the plastic cover in place at all times will ensure the connector remains undamaged and ready for attachment of a coprocessor.

## 4.7 Small Form Factor Pluggable Transceiver Introduction

**FEATURE:** New revisions of the DAG 3.8S, DAG 4.3S, and DAG 4.3GE cards are being introduced with Small Form Factor Pluggable (SFP) transceivers, sometimes known as mini-GBICs. This allows the specification of these products for use with different or multiple physical layers. For further information please see the Endace website or contact [sales@endace.com](mailto:sales@endace.com).

## **5.0 ENDACE CARDS**

**Description** This section describes new features, bug-fixes and known issues for Endace DAG cards.

**In this chapter** This chapter covers the following sections of information.

- DAG 3.5S Card
- DAG 3.6D Card
- DAG 3.6ET/DAG 3.6EP Cards
- DAG 3.6E Card
- DAG 3.7G Card [P/F]
- DAG 3.7T Card
- DAG 3.8S Card
- DAG 4.2S Card
- DAG 4.2GE Card
- DAG 4.3S Card
- DAG 4.3GE Card
- DAG 6.1SE Card
- DAG 6.2SE Card

### **5.1 DAG 3.5S Card**

**NOTE:** The feature described below affect only Endace DAG 3.5S ATM/ PoS Monitoring Interface Cards.

The DAG 3.5S card does not perform AAL5 FCS tests on received packets. ATM cell header checksums are tested, and cells with non-correctable HEC errors are dropped.

### **5.2 DAG 3.6D Card**

**Description** The features and issues described below affect only Endace DAG 3.6D DS3 Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- ADM Encapsulation Supported
- ATM Functionality
- Statistics Counters not Available

### **5.2.1 ADM Encapsulation Supported**

**NOTE:** The DAG 3.6D card now supports both PLCP and ATM Direct Mapping (ADM) encapsulations for ATM.

### **5.2.2 ATM Functionality**

**NOTE:** The DAG 3.6D card captures all ATM cells on both interfaces. Note that ATM AAL5 packet reassembly is not performed.

### **5.2.3 Statistics Counters not Available**

**NOTE:** The DAG 3.6D card documentation describes programmable statistics counters as being available via *dagthree*. These counters are not available in this release, and attempting to read them will produce incorrect values.

## **5.3 DAG 3.6ET/DAG 3.6EP Cards**

**Description** The features and issues described below affect only Endace DAG 3.6ET and DAG 3.6EP 10/100Mb Ethernet Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- DAG 3.6ET Card and DAG 3.6EP Card Differences
- Frames have rxerror bit set Frames have rxerror bit set
- Autonegotiation With DAG 3.6ET Card
- Status Flags and Statistics not Persistent

### **5.3.1 DAG 3.6ET Card and DAG 3.6EP Card Differences**

**NOTE:** The DAG 3.6E card can be ordered in one of two configurations:

DAG 3.6ET - Tap  
DAG 3.6EP - Port

The DAG 3.6ET card allows monitoring of an existing full-duplex 10/100 Ethernet network link. An on-board passive tap allows network traffic to pass through the link unimpeded while a faithful copy is presented to the DAG card.

The passive tap operates even when the DAG 3.6ET card is powered-down. Both directions of the link are monitored simultaneously with data from each direction being presented to the DAG 3.6ET's two monitoring ports.

The DAG 3.6ET card is equivalent to the DAG 3.5E card in almost all respects.

The DAG 3.6EP card provides two 10/100 Ethernet ports which can be used to terminate an Ethernet network link such as a SPAN monitoring port, or may be used in conjunction with an external splitter to monitor an existing link.

The DAG 3.6EP card is not a suitable replacement for the DAG 3.5E card and is not equivalent to the DAG 3.6ET card.

### **5.3.2 Frames have rxerror bit set**

**FIXED:** An issue has been fixed whereby when using a DAG 3.6EP/T card all frames have the rxerror bit set. This issue was fixed in 2.5.5.

### **5.3.3 Autonegotiation With DAG 3.6ET Card**

**ISSUE:** The DAG 3.6ET card simply monitors activity on the attached network link and is not capable of transmitting data onto the link. Consequently, the DAG 3.6ET does not participate in the Ethernet autonegotiation process.

However, the DAG 3.6ET card can determine the speed of the monitored link without participating in the autonegotiation process, but the mechanism may not be 100% reliable.

In cases where the assessment is made incorrectly, select the correct link speed manually using the *dagthree* configuration tool.

This issue does not effect the DAG 3.6EP which is capable of participating in the Ethernet autonegotiation process.

### **5.3.4 Status Flags and Statistics not Persistent**

**ISSUE:** The DAG 3.6ET/P card reports physical status information about the network links being monitored with the command: `dagthree -si`. Unlike other DAG cards, the information reported represents the instantaneous state of the network link, not the accumulated state since the previous query.

## **5.4 DAG 3.6E Card**

**Description** The features and issues described below affect only Endace DAG 3.6GE 10/100/Gigabit Ethernet Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- DAG 3.6GE Card Performance on Highly Loaded Gigabit Ethernet Networks
- Autonegotiation Requires Card to be Configured Correctly
- Forcing Gigabit Mode not Always Successful

### **5.4.1 DAG 3.6GE Card Performance on Highly Loaded Gigabit Ethernet Networks**

**NOTE:** The DAG 3.6GE card is a 32b/33MHz PCI device. Assuming 80 percent availability, no other PCI devices on the same bus for example, the PCI bus is capable of handling approximately 850Mb/s of data whereas a fully loaded gigabit Ethernet link is capable of presenting 1000Mb/s to the monitoring port.

Sustained bursts of full-rate network traffic may result in packet loss due to bandwidth limitations of the PCI bus. In these circumstances, the DAG 3.6GE card internal loss counter will accurately record the number of packets that were dropped.

### **5.4.2 Autonegotiation Requires Card to be Configured Correctly**

**NOTE:** The DAG 3.6GE card is capable of autonegotiating with an Ethernet peer to 10Mbit, 100Mbit, or 1000Mbit modes. However, unlike the DAG 3.6E, the DAG 3.6GE card must be fully configured before autonegotiation can take place.

Firmware must first be loaded using the `dagld` command and the card must be initialised with the `dagthree default` command. See the DAG 3.6GE Manual for information card configuration.

### **5.4.3 Forcing Gigabit Mode not Always Successful**

**NOTE:** The Ethernet standard requires that network peers establish a 1000Mbit link between themselves through the autonegotiation process. Therefore, forcing the DAG 3.6GE card to 1000Mbit mode with the `dagthree 1000` command may not always succeed if the network peer insists on autonegotiation.

## **5.5 DAG 3.7G Card [P/F]**

**Description** The features and issues described below affect only Endace DAG 3.7G (P/F) 10/100/Gigabit Ethernet Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- Difference Between DAG 3.7GP Card and DAG 3.7GF Card
- Loss Counters May be Incorrect

### **5.5.1 Difference Between DAG 3.7GP Card and DAG 3.7GF Card**

**NOTE:** The 3.7GP card is a dual-port copper gigabit Ethernet card with 10/100/1000 Mbps send and receive capability on each port. Each port can be connected to an external splitter or SPAN monitoring port to enable traffic capture on two separate links.

Alternatively, the card can be used in an in-line mode with traffic forwarded across the card as well as being transferred to host memory.

The 3.7GF adds "fail-safe" relays with hardware watchdog, so that in the event of a power interruption, or a hardware or software failure on the host, traffic will be switched to by-pass the monitoring card and network connectivity will be maintained.

### **5.5.2 Full OS Support now Available**

**NEW FEATURE:** The DAG 3.7G card is now fully supported under Windows, Linux and FreeBSD.

### **5.5.3 Loss Counters May be Incorrect**

**NOTE:** Loss counters may indicate higher packet loss than has actually occurred.

## 5.6 DAG 3.7T Card

**Description** The features and issues described below affect only Endace DAG 3.7T card E1/T1 Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- HDLC transmit not Supported
- ATM now Supported
- ATM ATM Transmit now Supported
- Early DAG 3.7T Cards Require `dagthree` Option

### 5.6.1 HDLC transmit not Supported

**ISSUE:** HDLC transmit is not supported in the 2.5.5 or 2.5.5r2 release.

### 5.6.2 ATM now Supported

**NEW FEATURE:** The firmware shipped in this release now supports capture of packets from both HDLC and ATM channels.

### 5.6.3 ATM Transmit now Supported

**NEW FEATURE:** The firmware shipped in this release now supports the transmission of packets from ATM channels.

### 5.6.4 Early DAG 3.7T Cards Require `dagthree` Option

**ISSUE:** All DAG 3.7T cards fitted with a 1.544MHz crystal oscillator instead of a 2.048MHz oscillator require an extra option to be used during configuration. All DAG 3.7T cards with serial numbers below #4415 are affected, except for card #4163. For these cards after loading firmware, the `dagthree` option `-1` must be used, for example `dagthree -d dag0 -1 default`.

## 5.7 DAG 3.8S Card

**Description** The features and issues described below affect only Endace DAG 3.8S card OC3c/12c Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- Packet/Cell Transmission
- PCI-X bus Configuration
- No Support for PCI
- DAG 3.8S Card Internal Pipeline Packet Retention
- DAG 3.8S Card Incorrect Counters
- Stopping Transmission While Sending Packets

### **5.7.1 Packet/Cell Transmission**

**NOTE:** The firmware shipped with the DAG 3.8S card supports ATM cell and HDLC packet transmission and reception simultaneously.

### **5.7.2 PCI-X bus Configuration**

**NOTE:** The DAG 3.8S card is intended for use in a PCI-X expansion socket. The DAG 3.8S card announces itself to the host system as a 66MHz-capable product and will function correctly in a PCI-X bus operating at 66MHz.

### **5.7.3 No Support for PCI**

**NOTE:** The DAG 3.8S card is a PCI-X product and will not operate correctly when used in a PCI socket.

Some PCI-X equipped motherboards provide the means to select PCI or PCI-X bus protocol for each expansion socket.

Ensure the DAG 3.8S card is inserted into a socket that has been configured for PCI-X operation.

### **5.7.4 DAG 3.8S Card Internal Pipeline Packet Retention**

**ISSUE:** With software release 2.5.5r2 the DAG 3.8S card may retain up to 1 packet in internal buffer memory at the end of a capture session. Using the `dagthree align64` option will work around this issue.

### **5.7.5 DAG 3.8S Card Incorrect Counters**

**ISSUE:** The programmable counters in the DAG 3.8S may over or under count events by up to 10%. The capture operation is not affected.

### **5.7.6 Stopping Transmission While Sending Packets**

**ISSUE** If the transmission process is stopped while the DAG card is in the process of transmitting a packet or cell, the first cell or packet sent after transmission is restarted may be corrupted.

## 5.8 DAG 4.2S Card

**Description** The features and issues described below affect only Endace DAG 4.2S OC48c Network Monitoring Interface Cards.

**NOTE:** CRC length must be set correctly or corruption will occur.

The DAG 4.2S performs FCS/CRC checking on the packets it receives. It is essential to configure the card with the correct CRC-length, 16 or 32 bits, or corrupted records will result.

See the installation guide for more details.

**NOTE:** Wire-length count does not include CRC field.

The wire-length (wlen) field of the records produced by the DAG 4.2S does not include the packet CRC.

Records provided to the host system also do not include the packet CRC. This behaviour is different to the ERF POS format produced by other DAG cards, which include FCS in the wlen field, and pass the FCS to the user.

**ISSUE:** Early DAG 4.2S may not respond to `dagreset`.

The DAG 4.2S may occasionally stop responding to `dagreset`, `dagrom`, or `dagld` commands. This can be resolved by rebooting the host PC.

This issue only affects DAG 4.2S cards with serial numbers below 2806.

**ISSUE:** DAG4.2S internal pipeline packet retention.

With software release 2.4.16 the DAG 4.2S may retain up to 1 packet in internal buffer memory at the end of a capture session.

## 5.9 DAG 4.2GE Card

**Description** The features and issues described below affect only Endace DAG 4.2GE Gigabit Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- DAG 4.2GE Internal Pipeline Packet Retention
- Early DAG 4.2GE Card may not respond to `dagreset`

### 5.9.1 DAG 4.2GE Internal Pipeline Packet Retention

**ISSUE:** With software release 2.5.5r2 the DAG 4.2GE may retain up to 1 packet in internal buffer memory at the end of a capture session.

## **5.9.2 Early DAG 4.2GE Card may not respond to *dagreset***

**Description** The DAG 4.2GE may occasionally stop responding to *dagreset*, *dagrom*, or *dagld* commands. This can be resolved by rebooting the host PC. This issue only affects DAG 4.2GE cards with serial numbers below 2787.

## **5.10 DAG 4.3S Card**

**Description** The features and issues described below affect only Endace DAG 4.3S OC48c Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- Packet Cell Transmission
- PCI-X bus Configuration
- No Support for PCI
- DAG 4.2S Card and DAG 4.3S Card Differences
- DAG 4.3S Card Internal Pipeline Retention Packet
- Stopping Transmission While Sending Packet
- AMD Update

### **5.10.1 Packet Cell Transmission**

**Description** The firmware shipped with the DAG 4.3S card supports ATM cell and HDLC packet transmission and reception simultaneously.

## 5.10.2 PCI-X bus Configuration

**Description** The DAG 4.3S card is intended for use in a PCI-X expansion socket. The DAG 4.3S announces itself to the host system as a 133MHz-capable product and will function correctly in a PCI-X bus operating at 66MHz, 100MHz, or 133MHz.

The `dagfour` configuration tool reports the speed at which the PCI-X bus is operating.

## 5.10.3 No Support for PCI

**NOTE:** The DAG 4.3S card is a PCI-X product and will not operate correctly when used in a PCI socket.

Some PCI-X equipped motherboards provide the means to select PCI or PCI-X bus protocol for each expansion socket. Ensure the DAG 4.3S card is inserted into a socket that has been configured for PCI-X operation.

## 5.10.4 DAG 4.2S Card and DAG 4.3S Card Differences

**NOTE:** Records generated by the DAG 4.3S card will by default include the packet CRC field. Records generated by the DAG 4.2S do not include the CRC field. The DAG 4.3S card can be configured to suppress the CRC field, thereby creating records similar to the DAG 4.2S, by using the `nopasscrc` option with the `dagfour` configuration command.

The DAG 4.2S card performs header compression on received frames whereas the DAG 4.3S card does not.

Both the above issues impact the wire-length (`wlen`) value that is reported for received frames.

## 5.10.5 DAG 4.3S Card Internal Pipeline Retention Packet

**NOTE:** With software release 2.5.5r2 the DAG 4.3S card may retain up to 1 packet in internal buffer memory at the end of a capture session. Using the `dagfour align64` option will work around this issue.

## 5.10.6 Stopping Transmission While Sending Packet

**NOTE:** If the transmission process is stopped while the DAG card is in the process of transmitting a packet or cell, the first cell or packet sent after transmission is restarted may be corrupted.

## 5.10.7 AMD Update

**FIX:** A firmware issue has been fixed on the DAG 4.3S which may have caused the FPGA not to respond.

## 5.11 DAG 4.3GE Card

**Description** The features and issues described below affect only Endace DAG 4.3GE Gigabit Ethernet Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- Packet Transmission
- PCI-X bus Configuration
- No Support for PCI
- Facility Loopback not Supported
- DAG 4.3GE Card Internal Pipeline Packet Retention
- Stopping Transmission While Sending Packet

### 5.11.1 Packet Transmission

**NOTE:** The firmware shipped with the DAG 4.3GE card supports Ethernet packet transmission and reception simultaneously.

### 5.11.2 PCI-X bus Configuration

**NOTE:** The DAG 4.3GE card is intended for use in a PCI-X expansion socket.

The DAG 4.3GE card announces itself to the host system as a 133MHz-capable product and will function correctly in a PCI-X bus operating at 66MHz, 100MHz, or 133MHz.

The `dagfour` configuration tool reports the speed at which the PCI-X bus is operating.

### 5.11.3 No Support for PCI

**NOTE:** The DAG 4.3GE card is a PCI-X product and will not operate correctly when used in a PCI socket. Note that some PCI-X equipped motherboards provide the means to select PCI or PCI-X bus protocol for each expansion socket.

Ensure the DAG 4.3GE card is inserted into a socket that has been configured for PCI-X operation.

### 5.11.4 Facility Loopback not Supported

**NOTE:** Note that unlike the DAG 4.2GE, the DAG 4.3GE does not provide a facility loopback feature.

### **5.11.5 DAG 4.3GE Card Internal Pipeline Packet Retention**

**Description** With software release 2.5.5r2 the DAG 4.3GE may retain up to 1 packet in internal buffer memory at the end of a capture session.

Using the `dagfour align64` option will work around this issue.

### **5.11.6 Stopping Transmission While Sending Packet**

**Description** If the transmission process is stopped while the DAG card is in the process of transmitting a packet, the first packet sent after transmission is restarted may be corrupted.

## **5.12 DAG 6.1SE Card**

**Description** The features described below only affect Endace DAG 6.1SE OC192c/STM-16c 10GBASE-LR 10GBASE-LW Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- PCI-X bus Speed
- No Support for PCI
- Support for 10Gb Ethernet
- FreeBSD Support

### **5.12.1 PCI-X bus Speed**

**NOTE:** The DAG 6.1SE card is intended for use in a PCI-X expansion socket. The DAG 6.1SE announces itself to the host system as a 133MHz-capable product and will function correctly in a PCI-X bus operating at 66MHz, 100MHz, or 133MHz.

The `dagsix` configuration tool reports the speed at which the PCI-X bus is operating.

## **5.12.2 No Support for PCI**

**NOTE:** The DAG 6.1SE card is a PCI-X product and will not operate correctly when used in a PCI socket. Note that some PCI-X equipped motherboards provide the means to select PCI or PCI-X bus protocol for each expansion socket.

Ensure the DAG 6.1SE card is inserted into a socket that has been configured for PCI-X operation.

## **5.12.3 Support for 10Gb Ethernet**

**FEATURE:** The DAG 6.1SE is intended for use with SONET OC192c or SDH STM-64c POS networks, as well as 10GBASE-LR and 10GBASE-LW Ethernet.

## **5.12.4 FreeBSD Support**

**ISSUE:** There is a known issue when using the DAG 6.1SE under FreeBSD where data capture may fail after some time. The captured data stream becomes misaligned and cannot be read successfully.

## **5.13 DAG 6.2SE Card**

**Description** The features described below only affect Endace DAG 6.2SE OC192c/STM-16c 10GBASE-LR 10GBASE-LW Network Monitoring Interface Cards.

**In this section** This section covers the following topics of information.

- PCI-X bus Speed
- No Support for PCI
- Increase in Data Capture Performance over DAG 6.1SE Card
- Support for 10Gb Ethernet
- Updated Thermal Management

### **5.13.1 PCI-X bus Speed**

**NOTE:** The DAG 6.2SE card is intended for use in a PCI-X expansion socket. The DAG 6.2SE card announces itself to the host system as a 133MHz-capable product and will function correctly in a PCI-X bus operating at 66MHz, 100MHz, or 133MHz.

The `dagsix` configuration tool reports the speed at which the PCI-X bus is operating.

### **5.13.2 No Support for PCI**

**NOTE:** The DAG 6.2SE is a PCI-X product and will not operate correctly when used in a PCI socket. Note that some PCI-X equipped motherboards provide the means to select PCI or PCI-X bus protocol for each expansion socket.

Ensure the DAG 6.2SE is inserted into a socket that has been configured for PCI-X operation.

### **5.13.3 Increase in Data Capture Performance over DAG 6.1SE Card**

**NOTE:** The DAG 6.2SE is a refinement of the DAG 6.1SE that offers lower-cost and increased performance. Internal datapath capacity has been increased by 33% and on-card buffering increased to 2Mbytes.

The DAG 6.2SE is capable of presenting up to 1.064GBytes/sec to the host system compared to 800Mbytes/sec for the DAG 6.1SE.

Actual results will depend heavily on the capability and configuration of the host system.

### **5.13.4 Support for 10Gb Ethernet**

**FEATURE:** The DAG 6.2SE is intended for use with SONET OC192c or SDH STM-64c POS networks, as well as 10GBASE-LR and 10GBASE-LW Ethernet.

### **5.13.5 Updated Thermal Management**

**NOTE:** The DAG 6.2SE Revision C card features a new active thermal management system to prevent cards overheating in situations with limited airflow.

Once the PP FPGA firmware is loaded with `dagld`, the `dagsix` default command must be run within one minute to initialize the thermal management system to avoid hardware damage.

The Revision C cards include a thermal sensor and speed controlled fan. If the card becomes too hot, it will automatically reset the PP FPGA.

The host PC will print the error message “`dag0: thermal overload`”. The PC should be rebooted before further use.

## **6.0 DAG APPLICATION PROGRAMMER'S INTERFACE ISSUES**

**Introduction**      The DAG application programmer's interface issues include the update and incomplete full error handling.

These changes only affect developers working directly with the DAG API.

Contact [support@endace.com](mailto:support@endace.com) for an updated Programmers Guide for the API.

**In this chapter**      This chapter covers the following sections of information.

- DAG Application Programmer's Interface Update
- Error Handling not Complete

### **6.1 DAG Application Programmer's Interface Update**

**FEATURE:**      The native DAG API in the 2.5.5r2 release is at version 1.6. This update introduces new functions but preserves code compatibility with earlier API 1.x releases.

These changes only affect developers working directly with the DAG API. Contact [support@endace.com](mailto:support@endace.com) for an updated Programmers Guide for the 1.6 API.

### **6.2 Error Handling not Complete**

**Description**      Full error handling is not complete in the MS Windows port of the DAG API.