Product Bulletin
March 15, 2010

IP Packet Processor for CDM-625 Advanced Satellite Modem

Comtech EF Data is pleased to announce the availability of an IP Packet Processor for the CDM-625 Advanced Satellite Modem. In addition to providing layer 3 functionality, it incorporates a number of key features for Wide Area Network (WAN) bandwidth optimization, including very low overhead Streamline Encapsulation (SLE), header compression, payload compression and advanced Quality of Service.

IP Packet Processor

The IP Packet Processor enables efficient IP networking and transport over satellite by adding routing capability with very low overhead encapsulation, header compression, payload compression and Quality of Service (QoS) to the CDM-625 Advanced Satellite Modem. The advanced QoS combined with header and payload compression ensures the highest quality of service with minimal jitter and latency for real-time traffic, priority treatment of mission critical applications and maximum bandwidth efficiency.

Header Compression

The IP Packet Processor incorporates industry-leading header compression for IP traffic. Header compression can reduce the 40 byte IP/UDP/RTP header to as little as 1 byte. For TCP/IP, the 40 byte header is reduced to as little as 3 bytes. For applications such as Voice over IP (VoIP), header compression can provide bandwidth savings exceeding 60%. E.g. the 8 kbps G.729 voice codec requires 24 kbps of IP bandwidth once encapsulated into an IP/UDP/RTP datagram. With header compression, the same voice call needs about 8.5 kbps – a saving of almost 65%. And, bandwidth requirements for typical Web/HTTP traffic can be reduced by 10% or more with TCP/IP header compression.

Payload Compression

The IP Packet Processor features industry-leading payload compression for IP traffic. Implemented in the hardware for maximum throughput and efficiency, payload compression can reduce the required satellite bandwidth by as much as 40-50%.

Streamline Encapsulation (SLE)

The IP Packet Processor includes Comtech EF Data's patent-pending very low overhead Streamline Encapsulation (SLE). SLE can reduce the encapsulation overhead by as much as 65% compared to industry-standard HDLC.

Quality of Service (QoS)

The IP Packet Processor incorporates multi-level QoS to ensure the highest quality of service with minimal jitter and latency for real-time traffic, priority treatment of mission critical applications and maximum bandwidth efficiency.

The supported modes of QoS are:

- DiffServ – Industry-standard method of providing QoS, enabling seamless co-existence in networks that implement DiffServ
- Max/Priority – Provides multi-level traffic prioritization with the ability to limit maximum traffic per priority class
- Min/Max – Provides a Committed Information Rate (CIR) to each user-defined class of traffic with the ability to allow a higher burstable rate depending on availability

When using rule-based QoS, up to 32 different rules can be configured based on:

- Source IP address and subnet Mask.
- Destination IP address and subnet mask.
- Source Port
- Destination Port
- Protocols (well known)
- Priority

Modes of Operation

The CDM-625 Advanced Satellite Modem with the IP Packet Processor can operate in three different modes to support point-to-point and point-to-multipoint network topologies:

- Router Point-to-Point
- Router Hub
- Router Remote

Sub-Mux

Sub-mux capability can be used with the IP Packet Processor to multiplex a primary serial synchronous or G.703 traffic stream with IP.

Adaptive Coding and Modulation (ACM)

ACM can be used with the IP Packet Processor to maximize throughput. ACM converts available link margin into additional throughput, thereby maximizing throughput under all conditions, including rain fade, inclined orbit satellite operation, antenna mispointing, interference and other impairments.

Redundancy

1:1 Redundancy is supported with a CRS-170A or CRS-180 IF switch and an off-the-shelf Ethernet switch.

In the near future, we will release a new M:N Switch that will enable 1:N redundancy support.

FAST Options

The following FAST options are available:

- Quality of Service
- Payload Compression
  - Up to 5 Mbps (CCM) / 1200 ksps (ACM) Payload Compression
  - Up to 10 Mbps (CCM) / 4100 ksps (ACM) Payload Compression
  - Up to 15 Mbps (CCM) / 4100 ksps (ACM) Payload Compression
  - Up to 20 Mbps (CCM) / 4100 ksps (ACM) Payload Compression
  - Up to 25 Mbps (CCM) / 4100 ksps (ACM) Payload Compression
- Header Compression
  - Up to 5 Mbps (CCM) / 1200 ksps (ACM) Header Compression
  - Up to 10 Mbps (CCM) / 4100 ksps (ACM) Header Compression
  - Up to 15 Mbps (CCM) / 4100 ksps (ACM) Header Compression
  - Up to 20 Mbps (CCM) / 4100 ksps (ACM) Header Compression
  - Up to 25 Mbps (CCM) / 4100 ksps (ACM) Header Compression

A package discount is available if ordering QoS, Header Compression and Payload Compression concurrently.

Compatibility

A CDM-625 equipped with the IP Packet Processor will not be interoperable with a CDM-625 without the IP Packet Processor for IP/Ethernet traffic.

CDM-570-IP Compatibility

A CDM-625 equipped with the IP Packet Processor is interoperable with the CDM-570/L-IP and CDD-564/L in Router mode using Streamline Encapsulation and compatible modulation, forward error correction, symbol rate, etc.

However, the CDM-625 IP packet Processor's payload compression is not interoperable with CDM-570/L-IP and CDD-564/L payload compression.

Availability and Ordering

The IP Packet Processor can be ordered as a factory installed option in a new CDM-625 Advanced Satellite Modem.

Primary Power Supply

The CDM-625 now offers two different power supplies for the AC version – 65 W and 175 W.

The current DC power supply offered with CDM-625 is rated 125 W. Earlier versions of the CDM-625 had a 65 W DC power supply.

The IP Packet Processor requires 175 W AC power supply. When ordering the AC version of the CDM-625 with the IP packet Processor, the 175 W AC power supply must be selected.

Upgrading Existing, Fielded Units

Adding the IP packet Processor to an existing, fielded unit would require

- IP Packet Processor
- New Power Supply (if needed)
- Additional fan
- Cables
- Other hardware
- FW upgrade to version 1.5.0 (or later)

Three upgrade kits will be available to Comtech EF Data's authorized service centers:

Upgrade Kit	IP Packet Processor	125 W DC Power Supply	175 W AC Power Supply	Fan, Cables & Other Hardware
KT-0000174 *Upgrades 65 W AC version of CDM-625*	√		√	√
KT-0000175 *Upgrades 65 W DC version of CDM-625*	√	√		√
KT-0000176 *Upgrades CDM-625 that has the 125 W DC or 175 W AC power supply*	√			√

Special Note:
At this time, only authorized service centers can perform the upgrade.

To learn more about the IP Packet Processor for the CDM-625 Advanced Satellite Modem, please refer to the datasheet and user documentation available on our web site, www.comtechefdata.com. To place your order, please contact your Comtech EF Data sales associate.


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