

# SPU-BULK – Stream Processing Unit – Bulk mode

## Stream Processing Unit – Bulk mode

The MD8000-SPU-Bulk line module combines multiple lower speed trunks into a single high speed pipe, giving users the ability to transport high bit rate video and data connections over lower speed and lower cost network trunks.

### KEY FUNCTIONS:

- Transport high-bit-rate stream over low-bit-rate trunk interfaces (link aggregation)
- Up to 4 circuits can be bundled into one virtual circuit for stream transportation
- Transport of up to 16 streams over up to 4 separate networks
- Efficiently use given bandwidths with stream-by-stream priority control

### KEY FEATURES:

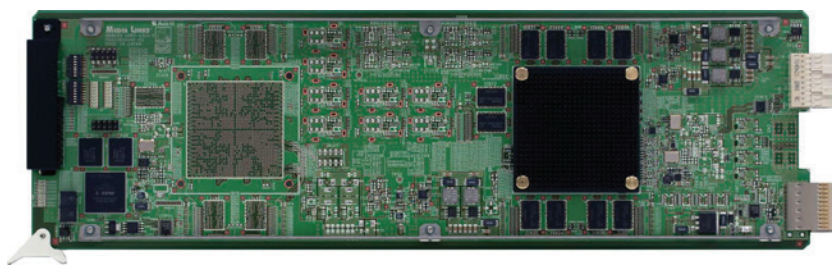
- Transportation modes: Tunnelling, Q-in-Q, and Overwrite supported
- Distribution algorithms: Round Robin and Priority Order supported
- Transmit or Receive capability
- Supports ARP, GARP and ICMP (Echo) for automatic address resolution and connectivity verification between peer Bulk boards
- SNMP and LED Status and Error stream monitoring
- Up to 10Gbps total transportation capability (per SPU-Bulk card)
- Single / Class B / Class C / Class J redundancy modes

Some networks lack sufficient WAN trunk bandwidth to transport higher bit rate video (uncompressed or compressed) or data services. Although upgrading trunk bandwidth rates may be an option for some customers, high monthly circuit costs and limited service availability often make this choice unattractive or impractical. For customers in this position, the MD8000-SPU-Bulk line module overcomes these limitations by logically combining multiple lower speed trunks into a single high speed pipe, giving users the ability to transport high bit rate video and data connections over lower speed and lower cost network trunks.

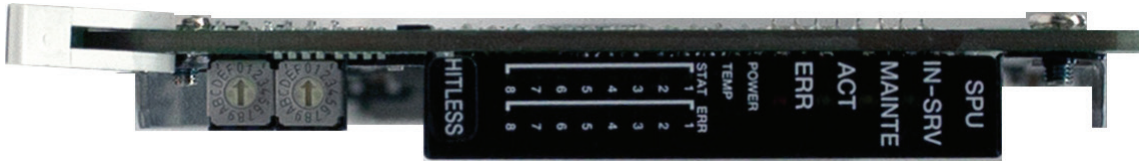
SPU-Bulk line cards work in pairs, with each SPU-Bulk card located in a different chassis. The transmitting SPU-Bulk card sends filtered input stream packets to multiple trunks (paths) following a selected distribution algorithm. The receiver restructures packets received from multiple paths and outputs them in a stream or streams (however, no packet reordering is made but packets will be output following the order of arrival). The transmitter and receiver can Bulk transport up to 16 filtered streams over up to 4 separate paths (lines).

This board supports two distribution algorithms: Round Robin and Priority Order. The Round robin algorithm spreads the load evenly over all paths, ensuring the efficient transport of high speed video or large volume file data. The Priority Order algorithm uses paths in order of their priority, with high priority paths taking precedence over low priority paths. This helps to minimize the arrival time difference and packet disordering among multiple paths, making it a good fit for high-bit-rate stream transportation.

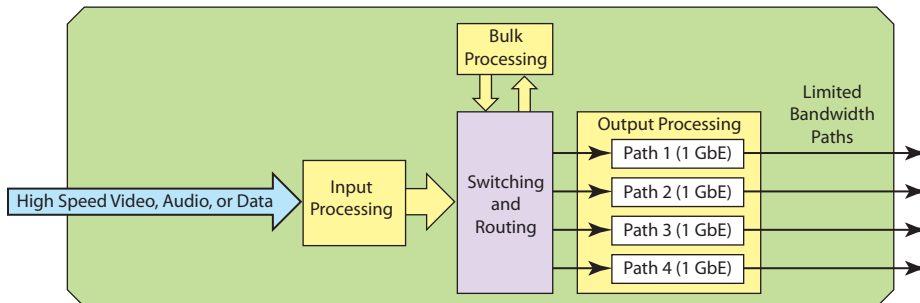
The SPU-Bulk module supports three IP network transportation modes: Tunneling Mode (RTP encapsulation), Header Translation Q-in-Q mode (VLAN tagging), and Header Translation (Overwrite mode).



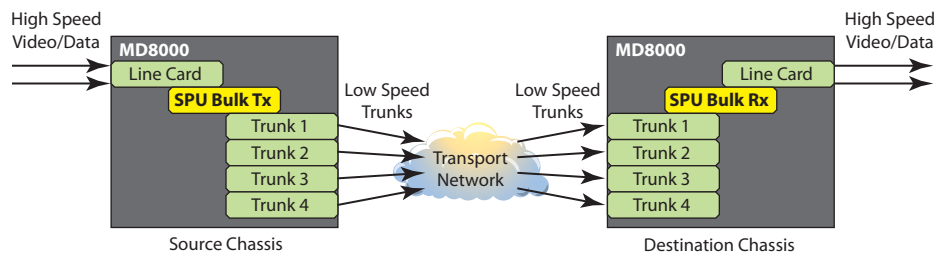
MD8000 - SPU-BULK – Stream Processing Unit – Bulk mode



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Bulk Processing allows high bandwidth transmissions to be shared across several lower bandwidth paths



MD8000 - SPU-BULK – Stream Processing Unit – Bulk mode Block Diagrams

### APPLICATIONS:

- Carrier Class Media Networks
- Flawless Contribution Video-Transport
- High Performance Studio Interconnects
- Reliable Content Delivery Systems
- Integrated Live, Recorded and File-Based Communications

### FUNCTIONAL SPECIFICATIONS:

Front Board	Dimensions	H: 113 mm W: 17 mm D: 367 mm
	Weight	0.6 kg or less
Power Consumption		25 VA or less
In/Out Interfaces		Interfaces with MD8000 Series BUS and SWCNT Boards
Max. no. of filtered input streams Paths (Bulk Trunk Lines)		Up to 16
Max. no. of Bulk Paths (Bulk Trunk Lines)		Up to 4
Total Transportation Capacity		Up to 10 Gbps
Support Network Layers		Layer2 or Layer3 (ARP/GARP)
Flow-in Capacity		10 Gbps for input and reception
Flow-out Capacity		10 Gbps for output and transmission
Distribution Algorithms		Round robin: use all paths evenly Priority order: use paths in order of priority
Transportation Modes		Tunneling: RTP-encapsulation Header translation (Q-in-Q): VLAN Tag nesting Header translation (Overwrite): VLAN ID modification
Redundancy Modes		Single / Class B / Class C / Class J

### ORDERING INFORMATION

MODEL	ORDER NUMBER	ORDER CODE
Stream Bulk Model	MD804002-G000	MD8000-CHP-BULK

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