ECLIPSE

LIQUID BANDWIDTH ETHERNET TRANSPORT

stratex NETWORKS

ECLIPSE

Switch to Eclipse.

What if you could switch to one wireless transmission platform that can support new high-speed data services as well as your traditional TDM-based voice applications?

What if you had the flexibility to assign bandwidth incrementally, to suit the application and level of service required?

Switch to Eclipse, and take advantage of the most compact nodal wireless solution available, now supporting integrated high-speed Ethernet data transmission.

Save Today. Save Tomorrow.

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Integrated Wireless Ethernet Transport

Liquid Bandwidth Assignment

Scalable capacity architecture enables the liquid assignment of bandwidth for Ethernet transport channels up to 100 Mbps wire speed.

Gigabit Ethernet Capability

Support for Gigabit Ethernet transport with throughput capacity up to 622 Mbps.

Carrier-Class Operation

Operation in licensed frequency bands, combined with guaranteed, full-duplex throughput, ensure high reliability and 5-nines service availability.

Layer 2 Switching Built-in

An integrated Layer 2 switch provides Ethernet traffic aggregation and prioritization.

Quality of Service Differentiation and Control

Quality of Service (QoS) support includes early warning utilization, packet queuing and priority mapping.

Combined Transport

High-speed NxE1/DS1 TDM voice plus 10/100 Base-T Ethernet data over a single radio channel.

Low Latency

Extremely low latency (<1 msec one way per link), suitable for delay-sensitive applications such as video and VoIP.

TDM Voice + Ethernet Data + QoS + Liquid Bandwidth

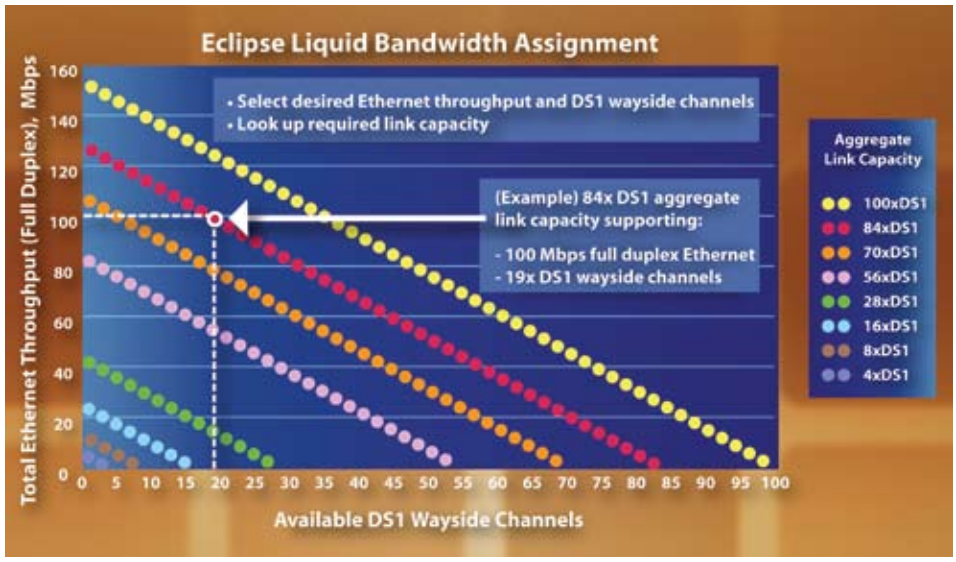
Eclipse Liquid Bandwidth

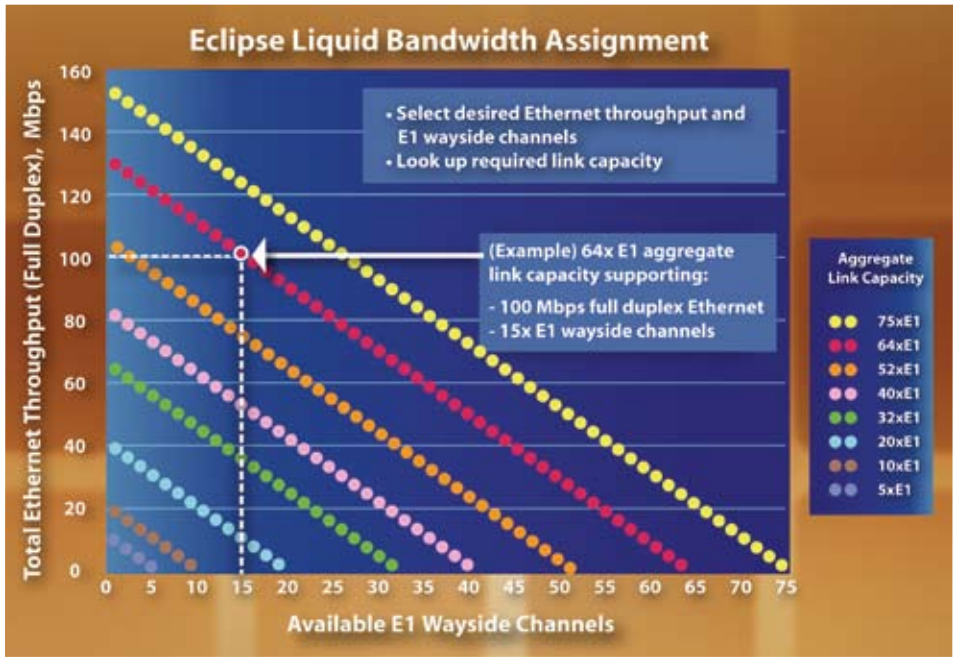
Liquid Bandwidth enables the incremental allocation of available wireless bandwidth for the simultaneous transport of data plus voice traffic over a single wireless path.

The wireless link parameters can be set under software control for the desired bandwidth, aggregate capacity and modulation, to conform to regulatory requirements, available frequency resources and desired throughput performance.

The selected link capacity can then be easily allocated between the Ethernet data throughput and the remaining wayside E1/DS1 TDM channels.

Eclipse Liquid Bandwidth Ethernet transport ensures that your network is optimized for today's traffic needs and is also prepared for the challenges of delivering tomorrow's next generation services.





Advanced Wireless Data Transport Solution

The Eclipse nodal architecture provides exclusive features to enable Liquid Bandwidth Ethernet transport.

Modular Design

A highly modular Intelligent Node Unit (INU) provides hot-swappable, plug-in data access cards for Ethernet data and TDM voice applications, or both.

Integral TDM Bus

An integral TDM Bus that allows the combination and configuration of traffic connections without the need for external cabling or media-converters.

Super-PDH

Eclipse Super-PDH enables the Liquid Bandwidth capability, allowing scalable, software-programmable capacity from 6 up to 150 Mbps.

Ultra-High Capacity

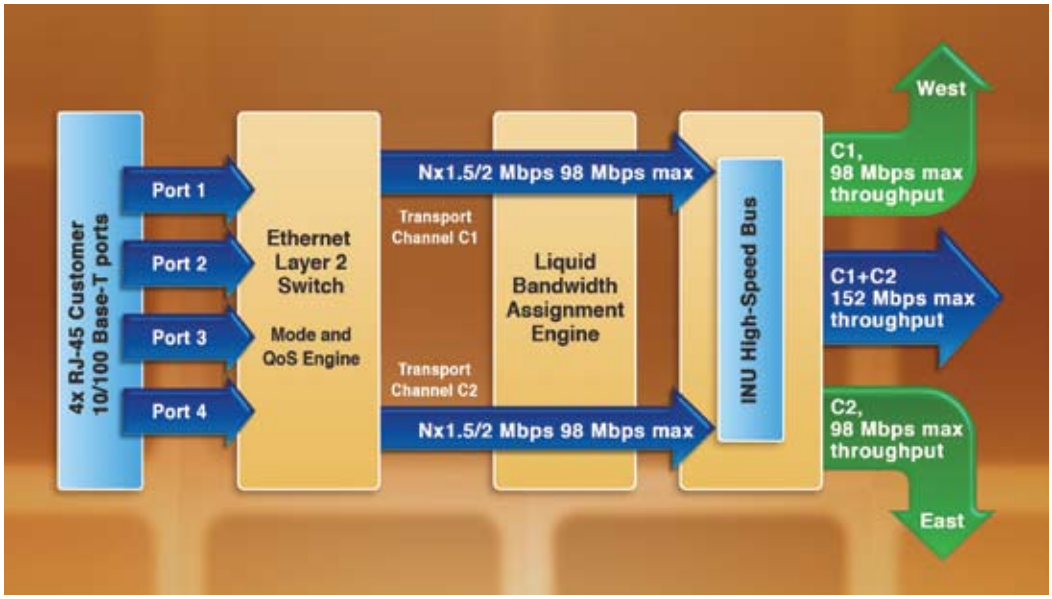
Eclipse Quattro configurations support capacities of 155, 311 and 622 Mbps to provide ultra-high capacity throughput for Gigabit Ethernet transport.

Now Eclipse enables operators to future-proof their network, with a smooth migration path to support Ethernet-based traffic, all with minimal equipment replacement, no network disruption, and at the lowest possible cost.

High-Speed Ethernet Transport

The Ethernet Data Access Card (DAC ES) is a plug-in module that can be fitted to the Eclipse INU to provide configurable high-speed Ethernet transport with quality of service controls.

Integrated Layer 2 Switch The DAC ES incorporates a 6-port Layer 2 Switch to provide four customer 10/100 Base-T Ethernet ports and two independent transport channels over one or two independent radio paths.



Incremental Capacity Assignment Each transport channel can be assigned bandwidth in 1.5/2 Mbps increments under software control up to a maximum link speed of 150 Mbps.

Built-in QoS Port-based VLAN and queue management of the transport channels allow for user-configurable service differentiation.

TDM Voice Transport Voice traffic can also be transported alongside Ethernet data over the same radio path by also fitting an E1/DS1 Data Access Card in the Eclipse INU.

Eclipse Liquid Bandwidth Ethernet provides high-speed connectivity across campuses or between business premises for Local, Metropolitan, and Wide Area Network extensions at wire-speed, with low latency and minimal hardware.

Eclipse removes expensive devices such as WAN routers, DSUs/CSUs, Frame Relay Access Devices, and SDH multiplexers that affect throughput performance by performing media and protocol conversions.

Ultra-High Speed Gigabit Ethernet Transport

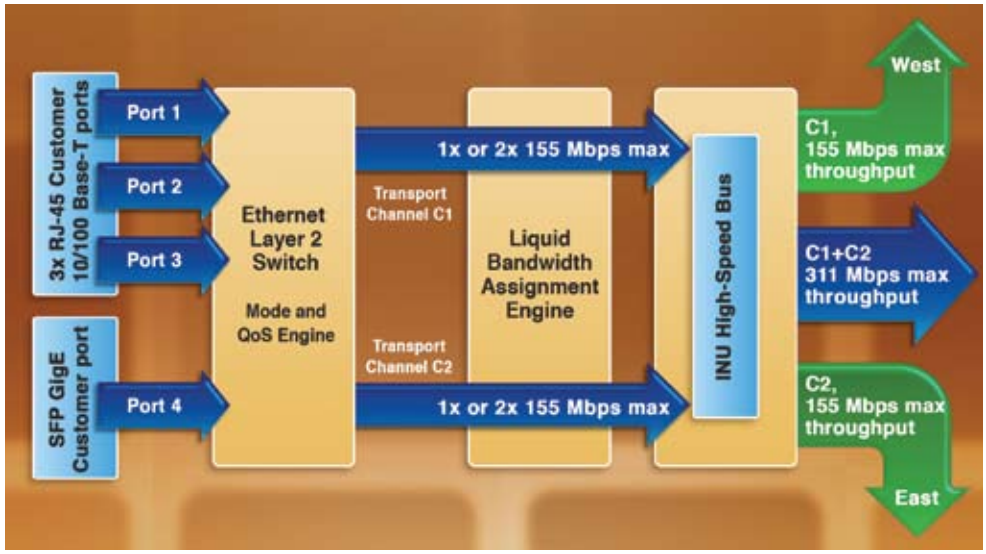
The Eclipse Gigabit Ethernet Data Access Card (DAC GE) is also designed around a 6-port Layer 2 Switch. A total throughput of 2x155 Mbps can be allocated between one or two transport channels.

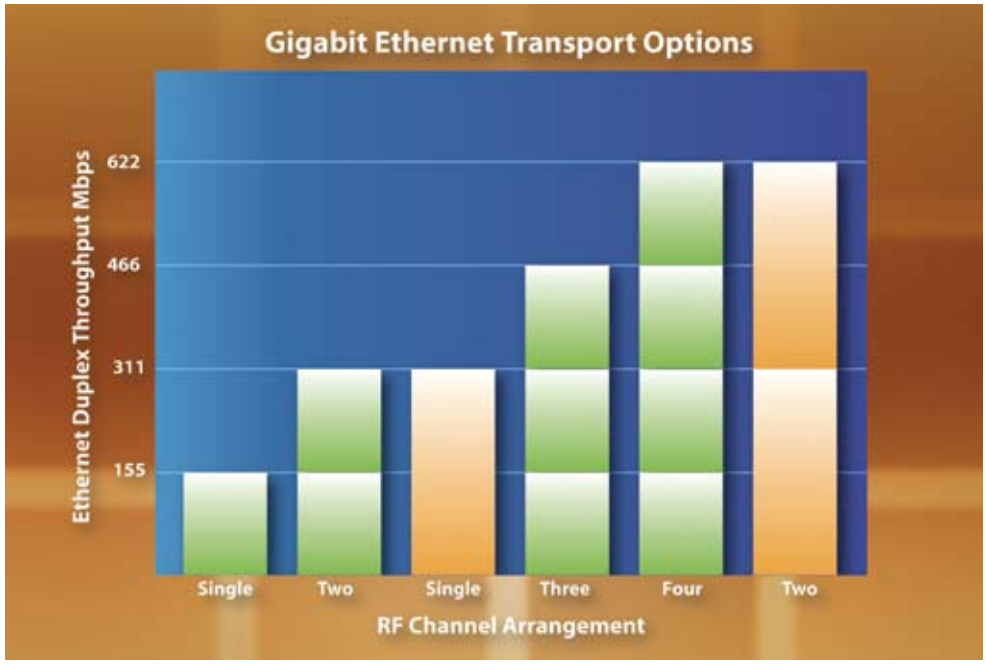
Link Aggregation Using Internal Link Aggregation, the DAC GE combines multiple RF traffic channels to provide Gigabit Ethernet throughputs up to 622 Mbps.

Rapid Spanning Tree Protocol (RSTP) The DAC GE supports IEEE 802.1D rapid spanning tree protocol to enable Ethernet ring networks without the requirement for external switches.

Jumbo Frames Support The DAC GE supports jumbo frames up to 9,600 bytes.

QoS/Performance Monitoring The DAC GE provides QoS features such as 4-level prioritization, flow control, VLAN support, and integrated RMON support for each port.





Eclipse Ethernet Common Parameters

General Platform	
Operating Frequency Range	5, L6, U6, 7, 7.5, 8, 11, 13, 15, 18, 23, 26 & 38 GHz
Modulation Options	QPSK, 16, 32, 64, 128, 256 QAM
Radio Path Configuration Options	1+0 non-protected
	1+1 hot standby redundancy
	1+1 hot standby with diversity (space or frequency)
	2+0 Dual Path non-redundant
	2+2 Dual Path Hot Standby Redundancy
	4+0 Quad Path non-redundant

Latency	Capacity	Milliseconds
Delay per hop, one way	8 Mbps	1.74
	16 Mbps	1.39
	32 Mbps	0.745
	64 Mbps	0.433
	100 Mbps	0.330

Fault and Configuration Management	
Protocol	SNMP
Performance Monitoring	ETHERLIKE-MIB (RFC 2665)
Local and Remote Management and Control	Eclipse Portal and CLI (DAC GE only)
	RMON Ethernet Statistics
	Early Warning (for bandwidth over-run)

Standards Compliance		
Networking		IEEE 802.3u
	Framing	IPv4 and IPv6
		IEEE 802.3d
	Flow Control	IEEE 802.3x
VLAN		IEEE 802.1q
QoS		Port based
		IEEE 802.1p
		Diffserv (RFC 2474)

DAC ES Parameters

Networking	
Number of ports	4
Protocol	10/100 Mbps Fast Ethernet
Networking Interface	RJ45 STP Auto-MDI-I/MDI-X Port
Transmission mode	Full and Half Duplex
Frame size	64 bytes to 1532 bytes
Bridging	Learning Bridge up to 4K MAC addresses
	Transparent to Bridge Data Protocol Unit (BDPU) frames
Operation mode	Forced or Auto-negotiation
Status LEDs	System Power, Speed, Link/Activity
Packet Queuing	Weight Mode - default 8:4:2:1
	Fixed Priority Mode
QoS features	VLAN, 802.1p & Diffserv selectable

Throughput Capacity		
Total Traffic Capacity		8 to 152 Mbps
		Scalable in 1.5 or 2 Mbps increments
Number of Ethernet Transport Channels		2
Data capacity, per Ethernet channel	Programmable	2 - 100 Mbps
TDM Capacity	Programmable	1 to 75x E1/100x DS1

DAC GE Parameters

Networking	
Number of ports	1 port optical IEEE 802.3z 1000BASE-LX standard
	3 ports RJ45 10/100/1000 Mbps Fast Ethernet
Jumbo Frame size	Up to 9.6 Kbytes programmable
Bridging	Learning Bridge up to 8K MAC addresses
	Transparent to Bridge Data Protocol Unit (BDPU) frames
Status LEDs	System Power, Speed, Link/Activity
QoS features	VLAN, 802.1p & Diffserv selectable
Link agregation	802.3ad
Spanning tree support	802.1D
Ring Protection	RWPR

Throughput Capacity	
Total Traffic Capacity	155, 311 or 622 Mbps
Number of Ethernet Transport Channels	2

All specifications are typical values unless otherwise stated, and are subject to change without notice.

For more detailed platform specifications, including RF performance parameters, please refer to the main Eclipse datasheet.

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