ECLIPSE PACKET NODE INTELLIGENT NODE UNIT

The Eclipse™ Packet Node Intelligent Node Unit is a highly modular and scalable indoor unit that delivers a unique combination of high capacity hybrid or all-packet transport, Carrier Ethernet/IP networking, and comprehensive Mission Critical Microwave features, enabling operators to prepare for the all-IP future.

PROTECT YOUR INVESTMENT

A highly modular architecture provides maximum protection of your investment. As your network and traffic requirements change over time, modules can be easily added to support additional radio directions or to change the traffic mix to facilitate the smooth migration from legacy TDM to advanced Carrier Ethernet/IP.

HIGHEST NODAL DENSITY

The Eclipse Packet Node INU comes in two platform options, a 1RU INU or a 2RU INUe which supports the highest nodal density in the smallest form factor, enabling the compact aggregation nodes that support up to 5 Gbit/s of packet handling capacity.

HIGH SPEED PACKET TRANSPORT

Eclipse Packet Node represents the very latest generation of microwave transmission, with a combination of advanced features to enable link speeds up to 2.8 Gbit/s from a single compact and modular unit.

MAXIMIZING FREQUENCY EFFICIENCY AND UTILIZATION

Adaptive Coding and Modulation, co-channel operation with XPIC, and optimized packet transmission drives more throughput than ever before, while also preserving valuable frequency resources.

ADVANCED CARRIER ETHERNET/IP INTELLIGENCE

A carrier-grade Ethernet switch provides traffic classification into 8 priority queues, QoS traffic priority assignment, VLAN support, Ethernet Optimization for improved throughput, and packet synchronization features.

MISSION CRITICAL FEATURES

Eclipse supports Mission Critical Microwave applications through a fully redundant architecture, native support for legacy TDM and new Ethernet/IP traffic for maximum efficiency and lowest latency, and exceptional security through integrated payload encryption and secure management options.

KEY FEATURES

- Compact 1RU (INU) and 2RU (INUe) shelf options, supporting 3x IF connected or 12 Ethernet connected RF units per rack unit
- FIPS 140-2 Level 2 validated; FIPS 197 validated
- Selection of hot swappable interface card options, including NxDS1, NxDS3, NxOC3, NxFE and NxGigE
- Hybrid native-TDM plus native-Ethernet/IP, or all-Ethernet/IP, transport
- Compact, modular design enabling simple expansion and upgrades
- High throughput, exceeding 460 Mbit/s per RF channel.
- Co-channel operation with optional XPIC to double frequency channel capacity
- QPSK to 256QAM, with hitless Adaptive Coding and Modulation (ACM) options
- Carrier Ethernet features, including Sync-E (G.8262), VLANs, and Ethernet OAM
- High density Ethernet interface capability with 6x Gigabit Ethernet ports per module
- Protected Configurations include Monitored Hot Standby, Frequency and Space Diversity, and 2+0 with L1 Link aggregation
- Fully protected traffic ports: electrical and optical Ethernet, and electrical T1 interfaces
- Integrated T1 Loop Switch
- Embedded Strong Security, featuring Payload Encryption, Secure Management and RADIUS client support
- Management support by Provision NMS and Eclipse Portal
- RoHS and WEEE compliant

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SYSTEM PARAMETERS

GENERAL		PER LINK	PER NODE
Throughput/Capacity Range	Native Carrier Ethernet/IP [1]	11 - 462 Mbit/s	2.77 Gbit/s
	Native TDM	7 - 127x DS1	127x DS1
		1, 3, 4x DS3	6x DS3
		1 , 2x OC-3	2x OC3
Fixed Modulation Options	Fixed		QPSK, 16, 32, 64, 128, 256 QAM
Adaptive Coding and Modulation	Modulation Options		QPSK, 16, 64, 256 QAM
	Coding Options		Max Throughput, Max System Gain
Co-Channel Operation with XPIC	Optional		>20dB XPOL improvement
Error Correction			LDPC
Adaptive Equalization			24 tap T/2 spaced feed-forward filter
ETHERNET SPECIFICATIONS			
Ethernet Standards Compliance	Ethernet		IEEE 802.3
User Ports, per Data Access Card (DAC)			3x 10/100/1000BaseT, 2x SFP Optical or Electrical
Networking Protocols			IPv4 and IPv6
Switch Capacity			5x 1Gbit/s user ports + 6x backplane ports
Maximum Frame Size			10000 bytes bi-directional
Throughput Acceleration (Frame Size Dependent)			IFG & Preamble Suppression
Traffic Prioritization			Per port based prioritization
VLAN Support			IEEE 802.1Q, 802.1ad (Q-in-Q)
Flow Control			IEEE 802.3x
Link Aggregation			802.1AX LAG L1LA (proprietary)
OAM			IEEE 802.1ag / ITU-T Y.1731
Monitoring	Port and Channel Status		Performance Graphs, RMON-1, Port and Channel
TDM SPECIFICATIONS			
Interfaces per Data Access Card (DAC)	NxDS1		1 to 16x 1.544 Mbit/s (DS1)
(Multple DACs of the same or different kind can be used per shelf)	NxDS3		1 to 3x 44.736 Mbit/s (DS3)
	DS3 Mux		2x DS3 to 2x28x DS1 Mux, channelized
	NxOC3	Optical or Electrical	1 or 2x 155.52 Mbit/s (OC3)
	OC3 Mux		1x OC3 to 84x DS1 Mux
Standards Compliance	DS1, DS3		ITU-T Rec. G.703, G.823
	OC3, Electrical / Optical		ITU-T Rec. G.703, G.825 / ITU-T Rec. G.957, G.825
PROTECTION			
Link Protection options			Hot-Standby, Space or Freq Diversity
Ring/Network Protection options			Resilient Wireless Packet Ring (RWPR™), IEEE 802.1w RSTP ITU-T G.8032 ERP
User Line Interface Protection			1+1: Ethernet, OC3, DS3, DS1
SECURITY COMPLIANCE			
Security and Encryption			Optional FIPS 197 validated, 128/256-bit AES encryption
			Optional FIPS 140-2 Level 2 validated
SYNCHRONIZATION			
Synchronization Options			Synchronous Ethernet (G.8262)
			IEEE 1588v2 frames passed transparently
			DS1 Line clock
STANDARDS COMPLIANCE			
EMC			FCC CFR 47, Part 15
Operation			EN 300 019, Class 3.1E
Safety			UL 60950-1
NEBS			GR-1089-CORE, GR-63-CORE
MECHANICAL, ENVIRONMENTAL			
Plug-in card slots			INU: 4; INUe: 10
Rack Height			INU: 1RU; INUe: 2RU
Operating Temperature	Guaranteed		-5° to +55° C (23° to +131° F)
Humidity	Guaranteed		0 to 95%, non-condensing
FAULT AND CONFIGURATION MANAGEMENT			
Secure Management	Encryption		AES-128/256, DES, 3DES
Local/remote Configuration Tool			Eclipse Portal
Network Management			Aviat Networks ProVision™

All specifications are typical values unless otherwise stated, and are subject to change without notice.
[1] Maximum Ethernet Throughput is for one 80MHz RF channel, single polarization, for 64 byte frame sizes. Corresponding Airlink base capacity is 366 Mbit/s.