

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 key convergence features, to enable operators to transform their network to manage explosive traffic growth and 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.

ESSENTIAL NETWORK CONVERGENCE FEATURES

Enabling network migration through comprehensive Hybrid TDM+IP architecture, with fully native support for legacy TDM and new Ethernet/IP traffic, without encapsulation or emulation, for maximum efficiency and lowest latency.

KEY FEATURES

- Compact 1RU (INU) and 2RU (INUe) shelf options, supporting 3x IF connected or 12 Ethernet connected RF units per rack unit
- Selection of hot swappable interface card options, including NxE1, NxE3, NxSTM1, 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 E1 interfaces
- Embedded Strong Security, featuring Payload Encryption, Secure Management and RADIUS client support
- Management support by Provision NMS and Eclipse Portal
- RoHS and WEEE compliant

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	4-100x E1	100xE1
		1, 3x E3	6x E3
		1, 2x STM1	2x STM1
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			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)	NxE1		1 to 16x 2.048 Mbit/s (E1)
[Multiple DACs of the same or different kind can be used per shelf]	NxE3		1 to 3x 34.368 Mbit/s (E3)
	E3 Mux		2x E3 to 2x16x E1 Mux, channelized
	NxSTM1	Optical or Electrical	1x 155.52 Mbit/s (STM1)
	STM1 Mux		1x STM1 to 63x E1 Mux
STANDARDS COMPLIANCE			
	E1, E3		ITU-T Rec. G.703, G.823
	STM1, Electrical		ITU-T Rec. G.703, G.825
	STM1, Optical		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 6.8032 ERP
User Line Interface Protection			1+1: Ethernet, STM1, E3, E1
PAYLOAD ENCRYPTION			
Payload Encryption	Compliance, Key		FIPS 197, AES-128/192/256
SYNCHRONIZATION			
Synchronization Options			Synchronous Ethernet [G.8262] IEEE 1588v2 frames passed transparently E1 Line clock
STANDARDS COMPLIANCE			
EMC			EN 301 489-1, EN 301 489-4 [EN 55022 Class A]
Operation			ETS 300 019, Class 3.1E
Safety			IEC 60950-1/EN 60950-1
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]
FAULT AND CONFIGURATION MANAGEMENT			
Protocol			SNMP v2c (standard), v3 (optional)
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.

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