KEY FEATURES

⊘	High Capacity, 192 Ports per shelf
⊘	Modular Design, Flexible Scalability, 48 Ports per ADSL2+ Line Card
⊘	Cost-Effective IP Migration
⊘	Gigabit Mini-GBIC SFP Optical Transport
⊘	Comprehensive Management
⊘	VLAN in multiple services
⊘	Multicast Video over xDSL

The NCT192 IP DSLAM is the perfect solution for anyone needing to provide broadband services to multi room premises such as Hotels, Motels, serviced apartments, units, retirement villages and student accommodation buildings/campus. The NCT192 uses statistical multiplexing and ATM over xDSL technologies to provide services such as high-speed Internet access and multimedia services, across existing twisted pair telephone lines.

Accommodating up to 4 line cards, and with each ADSL2+ line card supporting up to 48-ports the NCT192 is perfect for large premises. With a high bandwidth flexible backplane design, the system combines a variety of technologies to meet market requirements.

The NCT192 IP DSLAM comes with a Gigabit Ethernet network control card with network management for end-to-end operation, network administration, maintenance, and provisioning of xDSL access. In addition a pair of redundant power supply modules have been specially designed for the NCT192.

The NCT192 IP DSLAM is an extremely cost-effective solution, ideal for numerous network applications. It is perfectly suited to traditional services including email, Internet access, file transfer and VoIP, as well as providing an ideal platform for new IP-based services and application bundles such as "triple play", combining a variety of video and entertainment services with broadband access. This latest generation IP DSLAM represents a strategic investment in application delivery today and well into the future.

Hardware Specification

Hardware specification of the NCT192 IP-DSLAM lists the system general specification and each card module specification independently.

NCT192 System General Specification

Dimensions	Height: 7.88 inches (4.5U)
	Width: 17.3 inches, exclude ear bracket; 19 inches or 23 inches, include ear bracket
	Depth: 11.8 inches
Weight	Empty: 10 Kg
	Full loaded: 16 Kg
Network uplink interface	2 x mini-GBIC SFP (Small Form Pluggable) slots
ADSL interface	G.992.5 – From 64 kbps upto 28 Mbps downstream and 64 kbps upto 2.8 Mbps upstream in 32 kbps multiples.
	G.DMT – From 64 kbps upto 8.192 Mbps downstream and 64 kbps upto 1024 kbps upstream in 32 kbps multiples.
	G.lite –From 64 kbps upto 1.536 Mbps downstream and 64 kbps upto 512 kbps upstream in 32 kbps multiples.
Console interface Management access	RS-232 serial interface (Console cable 9PIN Female to 9PIN Male straight through)
	RJ-45 10/100 Base-T Ethernet (auto-negotiation)
	Gigabit management via Optical uplink interface
External alarm relay	4 of alarm input
	1 of alarm output receptacle
Power requirements	DC Input: -36 VDC to -72 VDC 300W
Acoustic noise	35 dB at normal fan speed
Backplane Switching Throughput	Total switch fabric: 12 Gbps bi-directional
	Network interface <-> Network interface: 1 Gbps per port
	Network interface <-> ADSL Subscriber interface: minimum 5.2 Mbps per port
Slot Structure	1 x NC Slot
	4 x LC Slot
	2 x Power Module Slot
	1 x Alarm Module Slot
	1 x Fan Module Slot

CO operating requirements

Temperature:	32º to 149ºF (0º to 65ºC) – Operating
	23º to 149ºF (-5º to 65ºC) – Short-term operating
	5º to 158ºF (-15º to 70ºC) – Storage
Humidity:	5 to 95% (non condensing)
Altitude:	0 to 10,000 ft (0 to 3048 m)
Operating shock:	5 to 500 Hz, 0.5 gravity (0.1octave per minutes)
Non-operating shock:	5 to 100 Hz, 1 gravity (0.1 octave per minute);
	100 to 500 Hz, 1.5 gravities (0.2 octave per minute);
	500 to 1000 Hz, 1.5 gravities (0.2 octave per minute)
Compliance Certifications	CE & CB
	EN55022 Class A / CISPR 22
	EN6100-3-2
	EN6100-3-3
	EN55024
	IEC60950-1

NCT192S POTS Splitter Shelf Specification

Dimensions	Height: 5.25 inches (3U)
	Width: 17.3 inches, exclude ear bracket; 19 inches or 23 inches, include ear bracket
	Depth: 10.8 inches
Weight	Empty: 3.5 Kg
	Full loaded: 11.5 Kg
Slot Structure	4 x SC Slot

NCT1902 Network Control Card

Dimensions (Upright)	Height: 400 mm
	Width: 24.1 mm
	Depth: 255.1 mm
Weight	0.85 kg
Power consumption	15.2 W
Network Interface	2 x mini-GBIC SFP (Small Form Pluggable) slots available for:
	1000 Base-LX Long Distance with LC Type Single mode
	1000 Base-SX Short Distance LC Type Multi mode
	1000 Base-LHX Long Distance LC Type Single mode
	1000 Base-ZX Long Distance LC Type Single mode
External Interface	1x RJ-45 Ethernet (IEEE 802.3u 10/100 Base-T) for Management
	1x RS-232 local console for LCT (Local Craft Terminal)
Packet Forwarding Rate	80,000 packets per second in 1518 bytes of MTU size for both upstream and downstream

NCT1901 48-Port ADSL Subscriber Line Card

Dimensions (Upright)	Height: 400 mm
	Width: 24.1 mm
	Depth: 255.1 mm
Weight	0.95 kg
Port Density	48 ports ADSL Subscriber line
Power consumption	49 W (1.02 W per port)
Standards support	ANSI T1.413
	ITU-T G.992.1, (G.dmt) Annex A
	ITU-T G.992.2, (G.lite) Annex A
	ITU-T G.994.1 (G.hs) handshake protocol
	ITU-T G.992.3 (ADSL2)
	ITU-T G.992.3 Annex J (Sym ADSL2)
	ITU-T G.992.3 Annex L (Reach Extended xDSL)
	ITU-T G.992.5 (ADSL2+)
	Support ATM Transmission Convergence ATM-TC defined in ITU-T G.992.5 Annex K
	Support PSD mask defined in ITU-T G.992.5 Annex A
	Support EOC and Overhead Channel Access defined in ITU-T G.992.5 and G.997.1
	Support latency path function and manual configure of payload transfer delay of latency path defined in ITU-T G.992.5
	Support selectable pilot sub-carrier for downstream direction defined in ITU-T G.992.5
	Support power management capability and ADSL link states defined in ITU-T G.992.5
	Support loop diagnostic function defined in ITU-T G.992.5 and G.992.3
	Support configuration for non-overlapped spectrum operation defined in G.992.5
	Support Loss of Power (LPR) defect generated by ATU-R
	Support seamless rate adaptation (SRA)
	Support auto-handshake and operate well with the ATU-R specified in ITU-T G.992.1 and G.992.3
Data rate (per port)	Upstream: 32 kbps multiples from 64 kbps to 2800 kbps (Annex M)
	Downstream: 32 kbps multiples from 64 kbps to 28000 kbps (Annex A)
ATM Protocol	RFC 2684 (Multiple Protocol over AAL5)
External interfaces	48 ports (RJ-21 connectors on backplane)

NCT1901S POTS Subscriber Card

Dimensions (Upright)	Height: 400 mm
	Width: 24.1 mm
	Depth: 255.1 mm
Weight	1.9 kg
Interface	2 x RJ-21 LINE, 2 x RJ-21 ADSL (Rear)
	2 x RJ-21 POTS (Front)

Software Specification

System Control	**Alarm Status Surveillance**
	• Automatic alarm and status report
	• Alarm event history
	• LED indication for alarm and system status
	• Alarm Output configuration
	Performance Monitoring
	• Line rate
	• Throughput monitoring
	• RFC 2662/RFC 3440 compliant xDSL line performance parameters gathering
	• Support ICMP ping test
	Configuration
	• Support add, delete, query, and modify functions for configuration
	• IGMP snooping setting (support IGMP v1 & v2)
	• IGMP v3 lite
	• IGMP proxy setting
	• VLAN setting
	• xDSL access line management per profile setting
	• Support batch ADSL Line Profiles, batch VLAN and batch video multicast profiles setting
	• Support MIB community string, community access privilege, Trap IP setting
	• DHCP relay agent with option 82
	• PPPoE intermediate agent per the WT-101 v8 of DSL Forum
	Maintenance
	• System firmware upgrade and download through FTP
	Security
	• Support Subscriber traffic isolation among xDSL line ports
	• BRAS (Gateway) MAC anti-spoofing
	• Binding management traffic to a dedicated VLAN
	• FDB aged mode
	• Static FDB
ATM	• Support ATM OAM F5 fault diagnostic
	• Support RFC 2684 multi-protocol over AAL5
VLAN	• Bindings of ATM PVCs and IEEE 802.1Q VLAN per the WT-101 v8 of DSL Forum
	• Multiple ATM PVCs to a singe VLAN
	• Multiple ATM PVCs to multiple VLANs
	• Support 8 PVCs per xDSL line
	• Support 4094 VLANs concurrently
	• Support VLAN tagging pass-through
	• VLAN-transparent port
	• Non VLAN transparent port
QoS	Support DiffServ
	• BA/PHB
	• SrTcm
	Support IEEE 802.1p, traffic classification, and rate limiting
	• Strict priority queue supporting
	• Network Interface: Support 8 priority queues
	• Subscriber Interface: Support 4 priority queues
	• VC-based traffic classification
	• VC level bi-directional rate limitation
Multicast	• Support 256 concurrent Multicast Groups (individual channel) forwarding and up to 192 copies for each Multicast Group
	• Admission control of IP Multicast (MC) groups
	• Based on the ADSL subscriber port matching
	• Based on the MC Group address matching
	• Support IGMP Snooping and IGMP Proxy
	• Support IGMP snooping for normal leave/immediate leave
	• Broadcast storm control
Bridging	• 16 K MAC addresses
	• IEEE 802.1d transparent bridge
	• Support RFC 2516 PPPoE packet forwarding
	• IEEE 802.3ad Link Aggregation Control Protocol (LACP)
Access Methods in the RFC2684 Bridged Encapsulation	• PPPoE connection method
	• Only PPPoE traffic is allowed.
	• DHCP connection method
	• Only IPoE traffic is allowed.
	• End-user traffic blocking before a valid DHCP IP address assignment.
	• End-user MAC/IP anti-spoofing
	• Static IP connection method
	• Only IPoE traffic is allowed.
	• End-user MAC/IP anti-spoofing
Access Control	• MAC address filtering (MAC access control)
	• xDSL subscriber MAC address number limiting
	• Network management access control
Network Management	• CLI through the RS-232 console and Telnet
	• SNMP manageable
	• Supports LCT, CLI and Telnet for system management.
	• Provide configuration, fault, performance, security management
	• Support ICMP ping test
	• Support Cascading configuration: Single IP management
Management MIB	• RFC 1157 SNMP v1
	• SNMP v2c
	• RFC 1213 MIB-II
	• RFC 1493 Bridge MIB
	• RFC 2233 IF-MIB
	• RFC 2674 802.1Q MIB
	• RFC 2622 / RFC 3440 ADSL line MIB
	• Enterprise NCT192 MIB