Empowered by Innovation

NEC

SpectralWave
U-Node BBM
STM-64/16 Multi-Service Platform

■ **Overview**
The SpectralWave U-Node BBM (Broad Band Manager) is a Multi-service Platform supporting STM-1/STM-4/STM-16/STM-64 optical transport. The U-Node BBM provides TDM service interfaces such as 2M, 34M, 45M, 140M, and data service interfaces with Gigabit and 10/100Base Ethernet.

■ **Universal Package Slots for Flexible/ Scalable Network Design**
The U-Node BBM main shelf has 8 universal interface slots. The interface slots can be upgraded up to total 32 slots by adding three EXT16 shelves.

■ **Various Network Topology**
The STM-N ports in the universal interface slots can be flexibly assigned to 1+1 MSP, 2/4-Fiber MS-SPRing and SNCP. This ability enables economical and flexible Dual Node Interconnection and Multiple Rings.

■ **Flexible Bandwidth using GFP and VCAT**
For IP packet transport, the U-Node BBM supports to establish transparent paths between Ethernet. For efficient and reliable Ethernet transport over SDH networks, Generic Framing Procedure (GFP) and VC-n-Xv Virtual Concatenation (VCAT) are adopted.
The GFP adaptation encapsulates Ethernet MAC frames for subsequent transport over existing SDH networks. The VCAT enables the GFP adaptation to establish flexible bandwidth path.

■ **Link Capacity Adjustment Scheme**
The Link Capacity Adjustment Scheme (LCAS) provides a control scheme to hitless increase or decrease the bandwidth of a VCAT Group link to meet the bandwidth needs of the application. In addition, the LCAS automatically decrease the bandwidth if a VCAT member experiences a failure in the network, and increase the bandwidth when the network failure is repaired.

■ **Resilient Packet Ring**
The U-Node BBM offers efficient and reliable Ethernet bandwidth delivery and bandwidth management in optical networks.
The Resilient Packet Ring (RPR) technology is an emerging standard (IEEE 802.17) that enables Ethernet transport over existing SDH infrastructures while continuing to leverage the SDH networks for legacy TDM services.
The U-Node BBM RPR function combines low cost and simplicity of packet-based, connectionless networking with the reliability, managed bandwidth, and scalability of optical networks.

■ **Integrated O-AMP**
The U-Node BBM enables Ultra Long-Haul optical transmission up to 44dB using integrated optical amplifiers.

■ **Integrated Management**
The INC-100MS offers total management of the NEC's optical transport network composed of the SpectralWave U-Node BBM, WBM, UN5000, the SpectralWave V-Node, V-Node S, C-Node, the SpectralWave DWDM systems and other SMS series SDH products.

- **Interfaces :**
  - STM-64 : I-64.2, S-64.2, L-64.2, V-64.2, U-64.2
  - STM-16 : I-16, L-16.1, L-16.2, V-16.2, U-16.2
  - STM-4 : I-4, L-4.1, L-4.2
  - STM-1 : I-1.1, L-1.1
    - Electrical interface, G.703
  - Ethernet : 1000Base-SX
    - 1000Base-LX
    - 10/100Base-T
  - PDH : 140Mbit/s, G.703
    - 45Mbit/s, G.703
    - 34Mbit/s, G.703
    - 2Mbit/s, G.703

- **Protection :**
  - STM-64/16 : 2/4-Fiber MS-SPRing
  - STM-64/16/4/1 : SNCP w/ non-intrusive Linear MSP

- **Cross-connect Capacity :**
  - VC-4   256 x 256   (PSW40)
  - VC-4   512 x 512   (PSW80)
  - VC-4-4c, VC-4-16c concatenation
  - VC-12   2016 x 2016   (PSW5WB)
  - VC-12   4032 x 4032   (PSW10WB)

INC-100MS
Management System

- **Built-in Orderwire :**
  - Station Calling : All-call, Selective-call, Group-call
  - Headset Interface : 4-wire 200 ohms
  - Telephone Interface : 2-wire 600 ohms

- **External Orderwire Interface :**
  - VF interface : 4W 600 ohms
  - Number of ports : 2 (E1, E2)
  - Digital Interface : V.11, 64kbit/s Co/Contra directional
  - Number of ports : 2 (E1, E2)

- **Housekeeping Interface :**
  - Housekeeping Alarm : 16 ports
  - Housekeeping Control : 8 ports

- **User channel :**
  - E1, E2, F1 : V.11, 64kbit/s Co/Contra directional
  - D4-D12 : V.11, 576kbit/s Co/Contra directional
  - Number of ports : 6

- **Management**
  - Craft Interface Device : Windows PC 19200 bit/s, RS-232C
  - NMS Interface : Qnx and Qecc interface
  - Physical Interface : Ethernet (10BaseT) DCCr (D1-D3) DCCm(D4-D12)
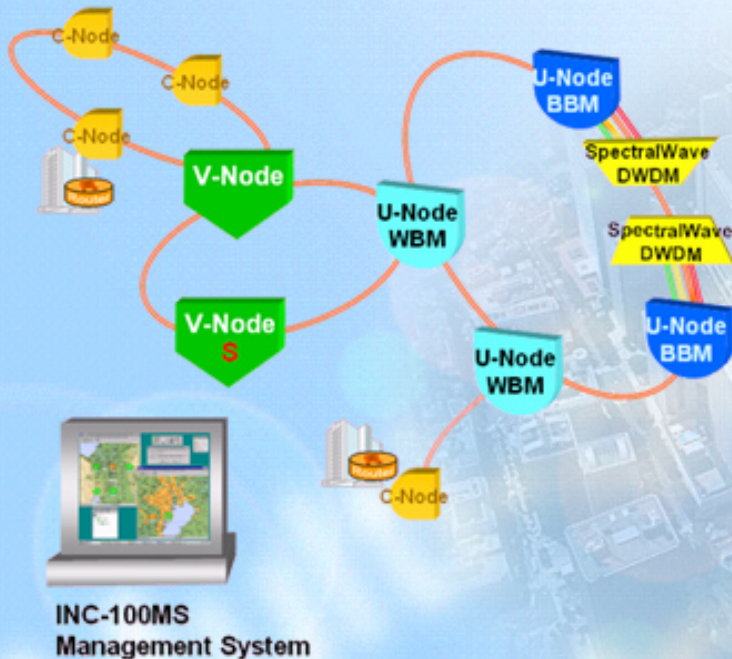 - Protocol : TL1/OSI TL1/OSI over TCP/IP

- **Power Requirements :**
  - -48VDC (-38.4V to -60V)
  - -60VDC (-48V to -72V)

- **Environmental Conditions :**
  - Temperature : $-5°C$ to $+45°C$
  - Relative Humidity : 5% to 90%
  - EMC: EN55022 (Class A) EN50082-1
  - Safety: EN60950 EN60825

- **Dimensions :**
  - Main Shelf (mm) : 548(H) x 490(W) x 270(D)
  - Wiring Access : Full front access

⚠ Safety Precautions	★Before installing, connection or using this product, be sure to carefully read and observe the cautionary and prohibited matters provided in the instruction manual.

- The company names and product names given in this catalog are trademarks or registered trademarks of the respective companies.
- The configuration or specifications are subject to change without prior notice due to continual improvements.

For inquiries, contact :

NEC

URL http://www.nec-mobilesolutions.com/infrastructures/