# Ocean 2020

## Intelligent Protocol Converter

- ~ Carrier grade
- ~ Non-blocking
- ~ External application control
- ~ Up to 1920 channels in a single shelf
- ~ Up to 7680 channels in a single cabinet
- ~ TDM and Voice over IP (available in modules of 480 channels)
- ~ Comprehensive TDM signalling – SS7, ISDN, DASS 2, DPNSS, QSIG
- ~ Industry standard SIP v2.0 signalling for VoIP (option)


**The Ocean 2020 can support a combination of TDM and VoIP interfaces functioning as a bridge between TDM and packetbased domains, providing a smooth transitional path between traditional and next-generation networks.**

The Ocean 2020 provides extensive support for TDM signalling including SS7, ISDN, DASS 2, DPNSS and QSIG as well as the industry standard VoIP option SIP v2.0. The Ocean 2020 signalling flexibility enables simple integration in a wide range of network environments providing a wide variety of signalling conversions.

The Ocean 2020 makes use of sophisticated routing rules to implement service grading. This gives network operators the ability to offer customers different levels of service with associated pricing models maximising utilisation of the Ocean 2020 and other network components in a cost effective manner for both the operator and customer.

Routing on both originating and terminating address is achieved using internal routing tables, configured by the 'Route' graphical interface. The programming environment also allows applications to detect and switch calls based on signalling parameters such as bearer capability.

The Ocean 2020 management environment provides a real-time view of system activity and alarm conditions. The presentation format is similar to Windows Explorer, creating a familiar feel, making it intuitive and easy to use.

A true carrier-grade solution, the Ocean 2020 is built around a backplane that uses multiple point-to-point connections. The dedicated connections used between cards ensure that the switch will continue to operate even in the event of a device, bus, card or system clock failure, offering availability greater than 99.999%. All cards are hot-swappable and software changes, including signalling protocol changes, can be carried out on live systems.

# Ocean 2020

## Specification

### Configuration

- Fully non-blocking switch with up to 7680 channels per cabinet

### Modularity

- 480 TDM channels or 480 VoIP channels

### Traffic capacity

- Up to 500 000 Busy Hour Call Attempts

### VoIP Audio (option)

- G.711 A-law PCM audio codec over RTP
- G.711 µ-law PCM audio codec over RTP
- Packet size configurable as 10, 20 or 30 milliseconds
- RTP (Real-time Transport Protocol) to RFC 1889
- G.168 Echo Cancellation (option)
- In-band DTMF
- Silence Suppression

### Redundancy

- Full duplication of all system modules: processing, signalling, LAN and power supplies
- Non-stop operation
- All cards are hot swap replaceable
- Live software updates
- Availability in excess of 99.999%

### Routing facilities

- Internal routing tables:
  - Full 'A' and 'B' party number analysis (32 digits each)
  - 'Wild-carding' on both 'A' and 'B' party numbers
  - Incoming trunk groups analysis
  - Up to 2000 in-rules
  - Up to 2000 out-rules
- E.164 Numbering
- SIP Domains configurable per VoIP card

### Interfaces

- Dual TCP/IP interfaces provide redundant connections to a LAN/WAN for:
  - System management
  - CDR retrieval
  - Database access
  - Statistic storage
- Full duplex single 100BaseT Ethernet interface per VoIP card with two additional Ethernet interfaces per VoIP card reserved for future enhancement

### Signalling

- Signalling System No.7:
  - Integrated Services Digital Network User Part (ISUP)
  - (White Book, Q.761 – Q.766 series) and national variants, in particular:
    - UK-ISUP (PNO-ISC/SPEC/007)
    - Australian I-ISUP (G500 interconnect)
    - German ISUP
    - Spanish ISUP
  - SS7 NUP: BTNR 167
  - SS7 IUP: PNO-ISC/SPEC/006
  - SS7 MTP: ITU-T Q.701-Q.704
    - L2 and L3 MTP congestion control
  - DSS1 / ISDN primary rate
    - European Telecommunication Standard (ETS) 300-102 and SIN232/261
  - DASS 2
    - BTNR 190
  - QSIG
    - ECMA-143
  - DPNSS
    - BTNR 188 (NICC ND1301:2001/03)
- SIP (Session Initiation Protocol) version 2.0 to RFC 3261 (Basic Call Set-up) with support for segmented UDP (option)

2020
INTELLIGENT
PROTOCOL
CONVERTER

Ocean Voice 2000 Series

## Inter-working

- Any-to-any conversion of supported protocols including between SIP and any Trunk Card-supported signalling protocols (SS7, ISDN, DASS 2, QSIG and DPNSS)

## Pre-loaded applications

- Answer Test Call
- Generate Test Call
- Manage DST [Daylight Saving Time]
- Monitor Audio
- Monitor Signalling
- SNTP (Simple Network Time Protocol) Client
- Switch
- Switch International
- Switch Supplementary Services
- Virtual Switch

## Operations and Management

- Platform Manager and Route – Windows-based management applications for configuration and status analysis including:
  - Channel status information (including partner channel)
  - User accounts administration
  - Signalling scheme and parameter configuration
  - Interactive feature configuration
  - Routing table, Trunk Group and Application configuration
  - Automated Route Loading
  - Busy / Enable channels and trunks
  - Loop back audio on trunks
  - Statistics
  - Visual alarm status, alarm counts and textual descriptions
- Alarm relays
- Simple Network Management Protocol (SNMP) via the Ocean SNMP Alarms Proxy

## Call Detail Records

- Created on cleardown of both inbound and outbound calls
- Partial CDR generation for long duration calls
- Local storage on dual hard disks (with FTP access for retrieval)
- Disk Storage rate up to 500 000 CDRs per Ocean 2020 shelf, per hour

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OCEAN NETWORK INFRASTRUCTURE