The HNC-IV 91853 provides a highly powerful network connectivity for BS2000/OSD systems. Modular in design, it is based on a high-end PRIMERGY™ system running under Linux™. The product is available in both floorstanding and rack-mount versions. Fibre Channel and Type S channels are supported on the host side, and Fast Ethernet™ and Gigabit Ethernet™ connections on the network side. Mixed operation between Fibre Channel and Type S channel is possible.

With the Fibre Channel (FC) channel type, effective support is provided on the channel side for the high throughput performance of the Gigabit LAN. Throughput rates (best case) approach the maximum possible utilization of a Gigabit Ethernet LAN. When openNet Server V3.2 is deployed, the data throughput of the HNC-IV is as much as six times that of the HNC-IIIR 91852, depending on operating mode and block size.

For security reasons, even the basic version of the HNC-IV 91853 provides dedicated, physically separate interfaces (V.24 and LAN) for administration and teleservice and for maintenance. This ensures the administration paths are decoupled from the data transfer paths. The HNC-IV is now fully teleservice-ready and so is seamlessly integrated into the Fujitsu teleservice infrastructure.

**Channel connection**

The HNC can be connected to BS2000/OSD systems via Fibre Channel (FC) and/or Type S channel, though the Fibre Channel connection delivers significantly higher data throughput rates. The Fibre Channel interface is only available on S servers, however. The HNC is either connected to S server with FC connection over a FC switch or is connected directly to the FC channel of the S server. The two channel interfaces installed as standard enable the HNC to be connected to the same BS2000/OSD system or to two different BS2000/OSD systems. The HNC can be connected simultaneously with further HNC or disks at the same FC channel of the S server.

When the HNC is connected to the same BS2000/OSD server via two Type S channels, the two channels can also be operated as a trunk group (optimization of channel throughput and fault tolerance of the connection).

**Support for VM systems**

The HNC-IV 91853 supports VM operation with max. 128 virtual network adapters, 64 per channel interface. The data transfer between the different BS2000/OSD systems can be performed internally in the HNC, without putting a load on the network.

**Network connectivity**

- Ethernet connection via copper:
  10/100/1000 Base-Tx Ethernet interface cards with RJ-45 connector.
  Max. two 10/100/1000 Mbit/s interface cards with two LAN ports each can be installed.
- Gigabit Ethernet connection via optical fiber:
  1000 Base-Sx is connected via LC connector.
  Max. two 1000 Base-Sx Ethernet interface cards with one LAN port each can be installed.

**Administration**

The HNC-IV provides a graphical web interface for simple administrative tasks (e.g. restarting connections and updating with security fixes) or for accessing information about the current configuration (for consistency with BCAM). The customer can use this interface via the console attached to the SCP-X 3970-4 or via a PC with browser connected to the administration LAN. Role specific access are available. The HNC itself can only be configured locally by the service engineer via the maintenance LAN.
The HNC-IV 91853 features an SNMP agent which also supports traps. These can be handled by an SNMP management platform (e.g. Unicenter TNG). The SNMP agent supports the following MIBs: RFC 1213 (MIB-II), RFC 1643 (Ethernet), and private objects.

**Update of the HNC software**

In the HNC-IV 91853 is integrated an procedure for updating the HNC with Service packages (collection of corrections and small functions), Hot fixes (single corrections) and Security fixes in the current usage. If necessary the HNC is started again afterwards or is loaded.

**Software requirements**

- BS2000/OSD ≥ V 5.0
- openNet Server ≥ V 3.1
- For VLAN configurations: openNet Server ≥ V 3.2

**Configuration**

For mixed component configurations, the maximum number per adapter type used can be determined by consulting the configurator. The maximum throughput of the HNC-IV 91853 must be taken into account in this case, i.e. certain variants are only useful for supporting different LAN networks / LAN segments.

**Installation**

Connecting cables must be ordered in addition. They are not included as part of the HNC-IV 91853 package

- Connection to Ethernet via copper: 
  10/100/1000 Base-Tx via RJ-45 connector
- Connection to Ethernet via optical fiber: 
  1000 Base-Sx via LC connector
  - Multimode fiber 62.5 µm
  - Multimode fiber 50 µm

**Available configuration variants**

The HNC-IV 91853 is available in three different ready-to-run basic variants as a floorstanding device. A conversion kit for rack installation, interface cards for LAN connection and additional MAC addresses are available as expansion options.

The three basic variants differ only in respect of the channel interface configuration. On the LAN side, all three models come equipped with an Ethernet board with two ports for 10/100/1000 Mbit/s via twisted-pair cabling.

**Basic variants**

- 91853-FIBER-CHAN: HNC-Fiber-Channel with two Type FC channels
- 91853-CLASSIC: HNC-Classic with two Type S channels
- 91853-UNIVERSAL: HNC-Universal with one Type FC channel and one Type S channel

**Expansion kits**

- 91853-RAES: Upgrade kit for rack installation
- 91853-KCG: Upgrade kit for two Ethernet interfaces 10/100/1000 Mbit/s Base-Tx (copper)
- 91853-KGF: Upgrade kit for one Gigabit Ethernet interface Base-Sx (optical fiber)
- 91853-2PS: 2nd power supply module
- 91853-MAC1E: Expansion by 32 MAC addresses

**Permitted configurations for the interface cards**

<table>
<thead>
<tr>
<th>Channel and LAN interfaces</th>
<th>Channel type</th>
<th>Channel type</th>
<th>91853-KCG</th>
<th>91853-KGF</th>
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</tr>
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<td>2-4</td>
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<tr>
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</tr>
<tr>
<td>1</td>
<td>1 (or 1 group)</td>
<td>2-4</td>
<td>0</td>
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<tr>
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<td>1 (or 1 group)</td>
<td>2</td>
<td>1</td>
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</tr>
<tr>
<td>0</td>
<td>2 (or 1 group)</td>
<td>2</td>
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</tbody>
</table>
Example configuration for connections

Example of a redundancy configuration
TECHNICAL DETAILS

HNC-IV 91853

Hardware
- High-end Pentium™-System with:
  - Intel Dual-Core Xeon™ processor
  - 1024 MB main memory
  - Hard disk
  - 3 ½” floppy disk
  - DVD-ROM
  - Power supply
  - Fans
- Console connection
  - 1 LAN interface for diagnostics and maintenance and
  - 1 LAN interface for administration via SCP or
    PC with browser

Software, firmware
- Linux™ as operating system and HNC-specific software for
  communication and administration
- Transmission of IP and ISO protocols
- SNMP agent

Dimensions, weight
Dimensions for floorstanding version:
- Height 473 mm with feet
- Width 286 mm with feet
- Depth 775 mm

Dimensions for rack mounting:
- Height 177 mm (4 U)
- Width 483 mm
- Depth 770 mm with handles
- Weight approx. 30 kg, depending on configuration

Electrical values, single-phase connection
- Rated voltage range: 100 V – 240 V
- Rated frequency: 50 - 60 Hz
- Rated current max.: 100 V - 125 V / 9.0 A
  - 200 V - 240 V / 3.5 A

Compliance with standards
- ROHS Directive 2002/95/EC
- Product safety to EN 60950-1, IEC 60950-1, UL 60950 3rd
  Ed., CSA 22.2 No. 60950 3rd Ed.
- Electromagnetic compatibility: EN 55022 class A,
  EN 55024, EN 61000-3-2, EN 61000-3-3
- CE certification to EU Directives 89/336/EEC (EMC) and
  73/23/EEC (LVD)
- RFI suppression to FCC Part 15 Class A

Temperature, noise
- Ambient temperature 10°C - 35°C
- Sound pressure level ≤ 52 dB(A) ISO 9296 (operation)
- Sound power ≤ 67 dB ISO 9296 (operation)