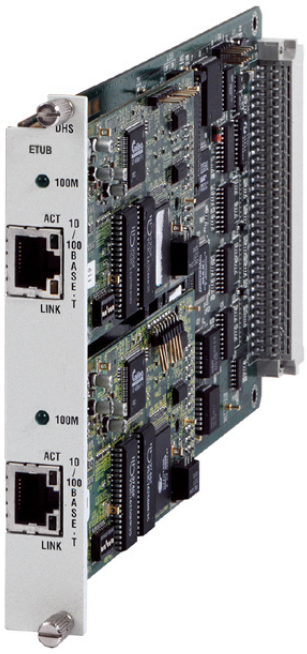
Data Sheet

DXC Module

DHS

Dual-Channel High-Speed Data Module



- Two high-speed data channels
- V.35, X.21, V.24, RS-530, or V.36/RS-449 synchronous interfaces
- Optional high-speed 10/100BaseT Ethernet bridge ports with transparent VLAN forwarding
- Programmable data rates from 56 to 1536 kbps

2-channel, high-speed data transmission for the DXC family of modular cross-connects

Each DHS module provides DXC with two high-speed data channels. DHS is available with a number of options for the user data ports, including a 10/100BaseT Ethernet bridge with transparent VLAN forwarding, or a choice of sync data interfaces: V.35, X.21, V.24, RS-530, or V.36/RS-449.

V.35 and V.11/RS-422 channel interfaces terminate in 25-pin D-type female connectors. Pin assignment is compatible with RS-530 specifications. Special adapter cables can be ordered to connect these channels to standalone V.35 or V.36/RS-449 equipment. X.21 and V.24 channel interfaces terminate in 15-pin D-type female connectors.

Each synchronous data channel operates data rates of n × 56 or n × 64 kbps (where n = 1 to 31 for E1 and 1 to 24 for T1 links). Channel data rates, as well as all operating parameters, are soft-selectable.

Instead of synchronous data channels, DHS can be equipped with 10/100BaseT Ethernet interfaces for virtual LAN connections over n × 56 kbps, or n × 64 kbps lines (ETUB option). The bridge filters Ethernet/Fast Ethernet frames, forwarding only frames destined to the WAN. The 10/100BaseT module can also block broadcast and multicast messages. The 10/100BaseT Ethernet bridge also features automatic MDIX support, fault propagation of WAN error conditions to the Ethernet port, and two queues for handling priorities.

RAD
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DHS
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Timeslots used on the E1 or T1 link can be either user-assigned or automatically selected.

Selectable timing modes permit each synchronous data channel to be configured as either DCE or DTE, and provide buffered retiming of the received data. Connection to nationally supplied digital lines (such as DDS) is supported. An external clock can be selected as the source for system timing.

Self-diagnostics upon power-up, as well as powerful testing capabilities, reduce downtime to a minimum.

Local support of four control signals for each channel is provided.

The DHS module occupies one I/O slot in DXC-8R, DXC-10A or DXC-30 chassis.

Specifications

SYNC DATA PORTS

Number of Ports
2

Interface (Electrical)
V.11/RS-422, V.24, V.35, X.21

Interface (Physical)
RS-530 (V.35 or V.36/RS-449 via adapter cables)
V.24
X.21

Connectors (per Channel)
25-pin D-type female for RS-530 and V.24
15-pin D-type female for X.21

Data Rates
Synchronous n × 56 or n × 64 kbps
For T1: n = 1 to 24
For E1: n = 1 to 31

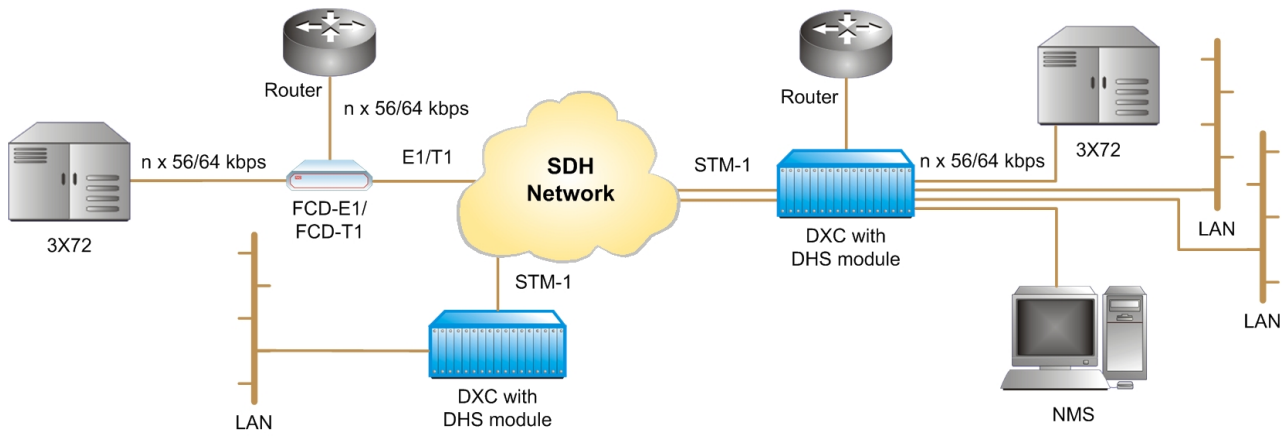

Figure 1. Connecting Remote Controllers with Application Servers

Clock Modes
DCE – transmit and receive clocks to synchronous DTE
DTE1 – transmit clock from synchronous device and receive clock to synchronous device
DTE2 – transmit and receive clocks from synchronous DCE

Control Signals
CTS – follows RTS or is constantly on, soft-selectable
DSR – constantly on, unless in test mode
DCD – constantly on, unless in RED ALARM

10/100 FAST ETHERNET BRIDGE PORTS

Number of Ports
2

LAN Table
2048 MAC addresses with 5-minute automatic aging

Filtering and Forwarding
150,000 frames per second

Throughput
Maximum n × 64 kbps (n=1 to 32); up to 2.048 Mbps data rate at the WAN side
19700 pps with 64-byte frame length and increment byte data (00, 01, 02, ...)
802 pps with 1536-byte frame length and increment byte data (00, 01, 02, ...)

Latency
LAN rate 100 Mbps, WAN rate 2 Mbps:
66 µs for 64-byte frame length
1400 µs for 1536-byte frame length

Frame Size
1536 bytes maximum

Buffer
120 frames (average)

Data Rate
10BaseT: 10 Mbps
100BaseT: 100 Mbps

Line Code
10BaseT: Manchester
100BaseT: MLT3

Connector (per Channel)
RJ-45

WAN Protocol
HDLC

Indicators
LINK (green) –
On when LAN link is on
ACT (yellow) –
On or blinking when LAN is transmitting or receiving data
100M (green) –
On when LAN is operating at 100 Mbps, Off when LAN is operating at 10 Mbps

Compliance
IEEE 802.3/Ethernet, IEEE 802.1p

GENERAL

Configuration
Programmable via DXC's management system

Diagnostics
Local loopback
Remote loopback
Interruptive monitor
Internal BERT
Auto self-test

Power Consumption
RS-530: 2.5W
X.21: 2.2W
V.24: 2.1W
V.35: 3.1W
ETUB: 5.5W
ETUR: 3.2W

Physical
Occupies a single slot in a DXC-8R, DXC-10A or DXC-30 chassis

For comparison of DXC chassis, see *Table 2*. For the list of DXC I/O modules, refer to the DXC-8R/10A/30 folder.

DHS

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Ordering

DXC-M-HS/^

Legend

^ User port:
- **V35** V.35
- **530** V.11/RS-422 interface with RS-530 connector (adaptable to V.36/RS-449 via cable)
- **X21** X.21
- **V24** V.24
- **ETUB** Ethernet bridge port with 10/100BaseT (UTP) interface

OPTIONAL ACCESSORIES

The following cables adapt the DHS 25-pin connector to the specified applications. Cable length is 2m (6 ft). A separate cable is required for each channel.

CBL-HS2/V/1/@
Adaptor cable for connecting a V.35 DTE in DCE clock mode

CBL-HS2/V/2/@
Adaptor cable for connecting a V.35 DCE in DTE1 clock mode

CBL-HS2/V/3/@
Adaptor cable for connecting a V.35 DCE in DTE2 clock mode

CBL-HS2/R/1/@
Adaptor cable for connecting a V.36/RS-449 DTE in DCE clock mode

CBL-HS2/R/2 /@
Adaptor cable for connecting a V.36/RS-449 DCE in DTE1 clock mode

CBL-HS2/R/3/@
Adaptor cable for connecting a V.36/RS-449 DCE in DTE2 clock mode

Legend

@ Cable connector on user side:
- **F** female
- **M** male

Table 2. DXC Chassis Comparison Table

Feature	DXC-8R	DXC-10A	DXC-30	DXC-100*
Height	1U	1U	3U	6U per nest
Maximum number of ports	32	40	120	688 (8 nests)
Number of I/O slots	4	5	15	86 (8 nests)
System redundancy	Built-in	None	Optional	Optional
E1, T1, E3, T3, STM-1 modules	✓	✓	✓	✓
XDSL, inverse multiplexing modules	✓	✓	✓	–
n x 56/64 kbps modules	✓	✓	✓	✓
Router, OC-3 modules	–	–	–	✓
ASCII, SNMP, RADview management	✓	✓	✓	✓

**The DXC-8R/10A/30 modules and DXC-100 modules are not interchangeable.*

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