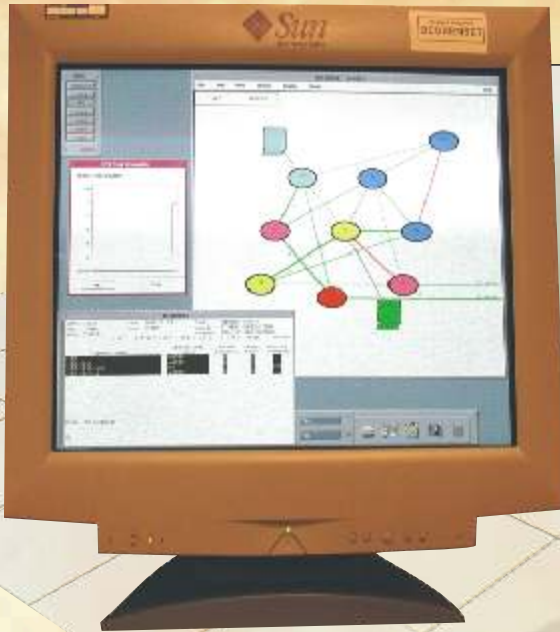


h i g h s p e e d



connect time

## NSS

### Nodal Switching System

The building block of the NSS is the NSU - Nodal Switching Unit. The NSU is a small-size modular ISDN digital switch ideally suited for military applications. Any number of NSUs can be interconnected to form networks of any size. Its unique networking capabilities ensures network transparent features and free numbering scheme.

# Nodal Switching System - NSS

## Non-blocking circuit switch

The heart of the NSU is the non-blocking digital circuit switch with a capacity of 240 channels of 64 kb/s. This may be configured as any mix of analogue and digital extension lines and trunks.

## Single-card switch

The NSU is implemented on a single board including 8 E1 or T1 ports and an Ethernet port. Integrated on the same board is also a full-feature X.25 packet switch function.

## Full range of features

The NSU provides a complete range of telephone and data communication services including ISDN BA and PRA. In addition, there are military extensions in the areas:

- Precedence and pre-emption
- Security
- Access control
- Closed user groups
- Extended conference facilities
- Load control

## Survivability

In military applications, survivability is a key issue. In the NSS, this is ensured by: automatic adaptive routing - ensuring that all subscribers are reached if a physical path exists

- autonomy - any part of the network has full functionality
- automatic network configuration - introduction (and removal) of trunks is automatically detected and used for routing
- load control, priority and pre-emption (graceful degradation ensuring that the most important traffic prevails)

## Network Management

The NSS employs a hierarchical network management system consisting of: TCF - technical control facility. Controls up to 40 NSUs. Handles all the parameter settings. Any TCF can be set up to access any other TCF enabling centralized or distributed management.

- GSS - Graphical support system. Optional monitoring system typically used at higher levels. Any number of GSSes may be set up to monitor the network or parts thereof.
- SSS - Statistical support system. Optional system for evaluation of network performance and planning. Typically used in larger networks.
- All systems run on COTS computers.

## Office support systems

The NSS includes a gateway towards commercially available office support systems.

Also, any number of switchboard operators can be defined. The operator function is implemented on a Windows PC.



## Mechanical design

The NSU comes in several mechanical variants. The dimensions are 600 mm or 19" wide. The 19" width variant has several options for installation in miscellaneous (semi-)mobile applications and a variant with two switching units in the same shelf.

More information on different hardware variants on request.

## Technical Specifications

### Baseline and specifications

CCITT and ETSI specifications

### Capacity (per NSU)

Circuit switch: 10 call attempts per second, 240 channels  
Packet switch: 150 call attempts per second, 3000 packets per second (packet size 128 bytes) 10000 VCs, 30 physical connections  
Conferencing: A total of 64 simultaneous conference users

### Routing

- Full saturation search
- multi-level saturation search
- spanning tree search
- deterministic search

### Synchronization

- Plesiochronous
- Master/Slave
- Mutual
- Hybrid Mutual - Master/Slave
- External reference

### Numbering plan

Free numbering plan, independent on location

### Internal clock

Short term stability < 10<sup>-9</sup>  
Temperature stability: ± 1 ppm (ambient temperature range)

### Extension lines

- Analog telephone lines
- 2/4w lines with E&M sign.
- Local battery (ringdown)
- ISDN S-interface (2B+D)
- ISDN U-interface (2B+D)
- ISDN PRA (30B+D)
- Async./Sync. Data
- Interfaces to external equipment (e.g. voice mail and DECT)
- switchboard operator

### External lines

- Analog trunks to PTT (E&M, loop, DTMF etc.)
- Digital trunks to PTT e.g. ISDN PRA (E1 or T1)
- Analog & digital tie lines to existing exchanges
- Radio interface units

### Interconnection of NSUs

- 2 Mb/s digital trunks (30B+D)
- 1.544 Mb/s digital trunks (23B+D)
- Analog or digital trunks with separate signalling channel (9600 bps) for use with voice compression multiplexers

### Physical characteristics

The NSU is designed as a very compact unit using hybrids and surface mount technologies. Common circuits are contained on one single circuit board.

### Technology

5 V CMOS  
Elan SC520 processor

### Environment

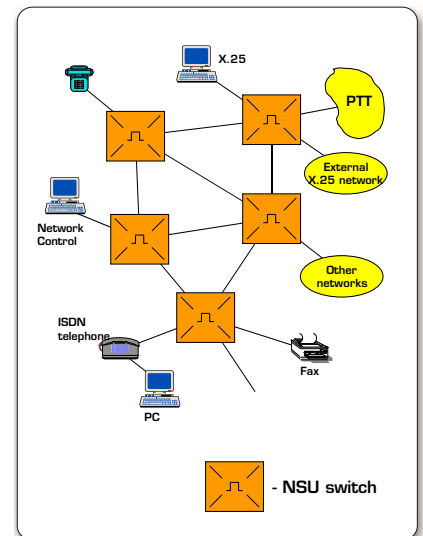
IEC 721-3-3

### Temperature

Operation: + 5°C to +45°C  
Storage: -40°C to +45°C

### Power requirement

Voltage: -48V DC  
Consumption: 150 W (max)



This publication is issued to provide general information about the product and is not to be regarded as a complete system specification, or to be used as a contract document. We reserve the right to change the design or specifications for any product without prior notice.

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