

LSU product portfolio

simulation and monitoring in one box

With the LSU you can run load test and monitoring concurrently

Line Server Unit v3 (LSUv3) is a family of ultra-high performance test equipment designed by Prisma Engineering to support -in all telecom areas- development, system acceptance and production test activities in an effective and flexible way.



The LSUv3 can simulate, via the PCM, STM-1/OC-3 (ATM and SDH) and Gigabit Ethernet interfaces, most of the GSM, GPRS, EDGE, UMTS and LTE network elements. Three models in several versions satisfy any test need.

LSUv3 Standard – the highest capacity system, a single unit for the largest testbeds

High connectivity and processing power make the LSUv3 specially suitable for Load & Stress testing of complex systems. Multiple Processors architecture allow very high capacity matching large network elements conditions.

LSUv3 Compact – Versatile device for lab and field

The LSUv3 Compact (LSUv3C) is a scaled-down version of the LSUv3 Standard. Thanks to its small size and rugged chassis, it can be easily moved around in laboratories and in the field.



LSUv3 Standard

LSUv3 Compact

Micro Line Server Unit – Convenient and versatile protocol analyser

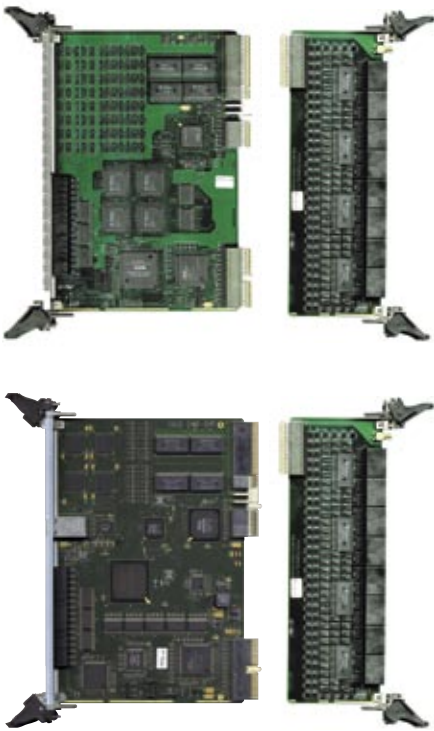
The Micro Line Server Unit (μ LSU) is a special version of LSU dedicated to monitoring applications. Designed for portability, its low cost, small size and light weight make it an ideal monitoring and custom solution both in the laboratory and on the field.



Micro LSU

E1/T1 interface cards

IPC cards provide connectivity for E1/T1 lines (balanced/unbalanced, software selectable). Different card versions allow cost effective and scalable monitoring and simulation solutions. The newest versions with CESoP processor (IPCE-16) allows TDM to IP bridging and transport over Gigabit Ethernet. IPCM-04 has been designed to work within the micro-LSU product.



IPCM-16, IPCE-16 main features

- 16 E1/T1/unframed line interfaces
- H.110 bus interface
- PLL clock synchronization via internal/external source
- CESoP processor (IPCE-16 only)
- Gigabit Ethernet interface (IPCE-16 only)
- TDM to IP packet bridging (IPCE-16 only)
- 1-2-4 bit sub-channelling support (IPCM-16)
- 2-4 bit sub-channelling support (IPCE-16)

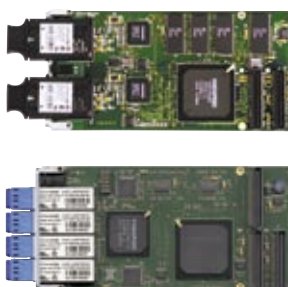


IPCM-04 main features

- General purpose HDLC (ISO 3309)
- 4 E1/T1 line interfaces
- 256 Channel SCC on board
- H.110 bus interface
- PLL clock synchronization via internal/external source
- OSI Layer 2 protocol support (LAPB, LAPD, Frame Relay, SS7, etc.)
- Transparent mode
- Configurable logical channels with sub/hyper-channelling support

STM-1 ATM Interface Cards

For ATM connectivity over STM-1 links, two options are available: the dual-port (ISTM-02) card and the quad-port (ISTM-04) PMC card both suitable also for bi-directional monitoring over STM-1 links.



ISTM-02, ISTM-04 main features

- STM-1/OC-3 Framer
- High performance ATM SAR
- AAL0, AAL3/4, AAL5 support in hardware
- AAL1, AAL2 support in software

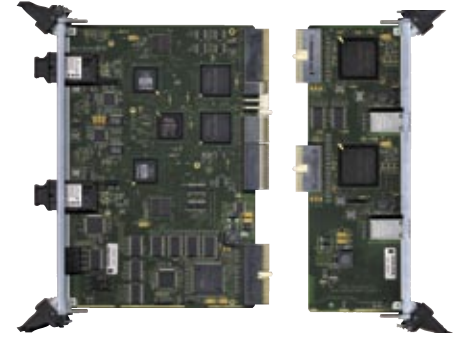


STM-1 SDH (Channelized) Interface Cards

The 2-port STM-1/OC-3 Channelized line card provides E1/DS1 aggregation for the LSU product family. The card interfaces with LSU internal H.110 bus and provide two OC-3/STM-1 duplex SC single mode optical interfaces. Complete payload monitoring and simulation of 1 STM-1 SDH interface is available. An optional Rear I/O Panel (IRGE) provides a dual CESoP processor and Gigabit Ethernet interface for TDM over IP bridging.

ISTC main features

- 2 STM-1/OC-3 optical interfaces
- Complete range of E1/T1 multiplexing options (e.g. 63 E1 or 84 T1/J1)
- Fractional E1/T1 support
- H.110 interface and internal switch matrix
- Complete compatibility with testing software over PCM lines
- IRGE main features
- TDM to IP packet bridging (CESoP processor)
- Dual Gigabit-Ethernet interface



Serial Controller Cards

PSC Serial Controller Cards take charge of the sampling and low level processing of protocol data acquired through E1/T1 or STM-1 SDH cards. The PSCC-1K card connects to the TDM interface cards through the H.110 bus, while the newest versions with CESoP processor (PSCE-1K) connects to the line interfaces through Gigabit Ethernet.

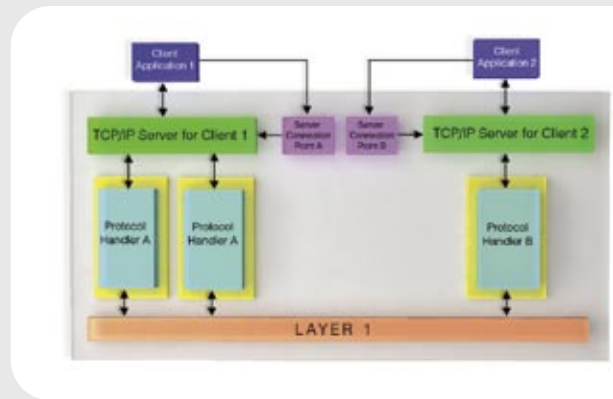
PSCC-1K, PSCE-1K main features

- General purpose HDLC (ISO3309)
- OSI Layer 2 protocol support (LAPB, LAPD, Frame Relay, SS7, etc.)
- Transparent mode (unformatted data) support
- Configurable logical channels with sub/hyper-channelling support
- H.110 bus interface (PSCC-1K only)
- 4 D-phone devices (PSCC-1K only)
- CESoP processor (PSCE-1K only)
- Gigabit Ethernet interface for TDM to IP packet bridging (PSCE-1K only)



Client server approach and native multi user support

The LSU typically processes all the computing-intensive low-level protocols (up to layer 3). Simulation of higher levels is handled by external clients (PCs or workstations). A wide range of client applications is available, together with facilities for the development of custom applications or integration with custom or 3rd party tools.



LSU client server architecture

Consistent user interface and testing procedures throughout the product test cycle

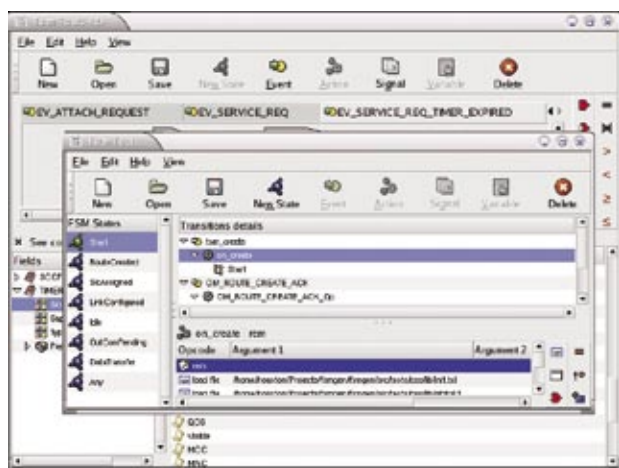
High connectivity and processing power make the LSUv3 suitable for both Functional and Load & Stress testing of complex systems. In this way the same equipment can be used throughout the product test cycle.

The LSUv3 can monitor signalling or traffic channels, simulate protocol stacks, generate traffic with packet data or speech, modify data exchanged between two real Network Elements, cause single-shot or periodical events representing either failures or abnormal conditions, for both physical interfaces and protocols.

The modular architecture of the system offers great scalability in terms of connectivity, number of channels and processing power. The multi-tasking and multi-user operation based on a Posix compliant operating system allows to use multiple applications concurrently, to handle different interfaces with proper coordination, to share the system among multiple testbeds, and to integrate it into the corporate network.

A wide range of LSUv3 software solutions cover any need for mobile elecom testing

The LSUv3 comes with a wide selection of available software modules. New software modules and equipment features are continually added, due to the adoption of new standards or in order to handle specific customer needs or proprietary protocols. Prisma Engineering is available to develop special test suites for specific customer requirements, or to integrate additional features (e.g. proprietary O&M procedures) in the already existing software modules.



LSU test manager graphical user interface

Versatile and future proof system architecture - cPCI, H.110 and CESoP

The LSUv3 is a high performance multiprocessor system based on the Compact PCI (cPCI) bus. It uses a pool of top level Pentium® cards (PPU Controllers) to provide the needed processing power. SCC (Serial Communication Controller) cards provide specialised processing for TDM channels. E1/T1 PCM Line cards, and STM-1/OC-3 interface cards provide connectivity. Commercial cPCI cards can be added for special applications. The newest versions with CESoP processor allow TDM to IP bridging and transport over Gigabit Ethernet Interfaces.

Supported Interfaces

- TDM over E1/T1, STM-1 (SDH) and Ethernet (CESoP)
- ATM over STM-1 and E1/T1 (TC-Layer &IMA)
- IP over Ethernet, E1/T1 and STM-1 (PPP)

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