# Matrix Switch with STM-1/OC-3 and Gigabit Ethernet
## Model 6511

*Move data rapidly with the Patton 6511 Matrix Switch and get non-blocking any-to-any TDM access, Packet Switched Ethernet, and high-speed trunking...all in a single card*

## Non-Blocking I/O Fabric
*Get dedicated connectivity to every input and every output port while grooming TDM or switching packet data*

## Integrated STM-1/OC-3 DACS
*Resolve traffic down to 64 kbps timeslots, switch any timeslot to any port or loop it back*

## Optical or Electrical Egress
*Choose between short-haul electrical BNC or intermediate-range optical SC connectors*

## Hot Swappable and Redundant
*For critical applications use dual 6511s and get 1+1 redundancy. Hot-swap cards for fast main-*

## Redundant Packet Switching
*Reliable packet switching architecture ensures redundant paths for deploying mission-critical*

## WEB/SNMP Manageable
*Get fault detection and resolution standard. Use the embedded HTTP/SNMP agent to man-*

The Patton Model 6511 Matrix Switch is an integrated multimedia switching engine complete with a digital access cross-connect, high-speed STM-1/OC-3 trunk interface, wire-speed Ethernet packet switch, and GUI management system.

The Model 6511's flexible channel switching fabric allows non-blocking switching from any input to any output. The Channelized STM-1/OC-3 interface integrates into a SDH/SONET network, enabling users to channelize an STM-1/OC-3 down to 64 kbps timeslots. With full grooming capability the Model 6511 DACS allows any-to-any TDM mapping and can place any channel from any card onto any port.

Combined with the ForeFront AIS Packet-Switched Backplane, the Model 6511 redundantly interconnects every slot, at wire-speed, and aggregates traffic from each system card onto dual-switched uplink Ethernet ports. With increased performance and throughput, the

packet backplane allows non-blocking access to the Model 6511, other system cards, and the uplink ports.

With the Forefront architecture, TDM and packet can be used simultaneously and to full capacity. In a system loaded with dual 6511's, the high speed channel switching and packet backplane on the Model 6511 offers 1+1 redundancy.

Management is a snap with VT-100, TELNET, SNMP and WEB options. Manage traffic out-of-band via dual 10/100/1000 Ethernet ports or terminate PPP/FR via timeslots in-band. With the integrated L2/L3 switch the Model 6511 provides managment access to all cards within the chassis

Master time and space with the Model 6511 Matrix Switch and realize an unequaled level of density and control over the new convergent network.

Visit www.patton.com for more information.
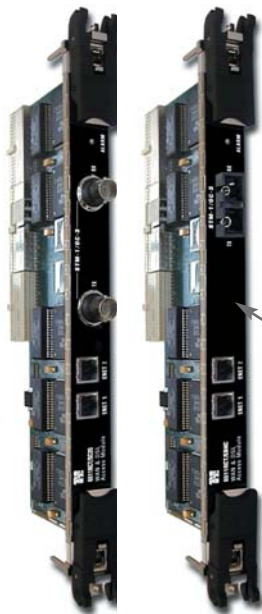
### 6511RCT STM-1 Trunk Module
Choose intermediate optical or short-haul electrical channelized STM-1/OC-3 interfaces. Dual 10/100/1000 Mbps switched Ethernet ports for system packet aggregation.
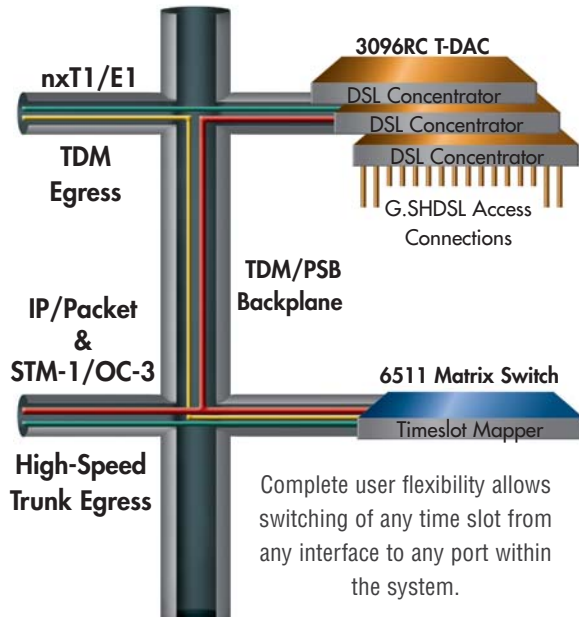
### 6511RC Matrix
Get high speed channelized DACS, timeslot mapper, and layer 2 packet aggregation. Use with 6511RCT and get high speed network access from DS-3 and STM-1/OC-3.

## Backplane Diagram

The ForeFront architecture guarantees total non-blocking operation for any TDM application and for Packet switching applications over the redundant Packet Switching Bus (PSB). With the ability to simultaneously transmit and receive on both full-duplex 10/100/1000 Ethernet up-link ports, the 6511RC offers unparalleled switching to any DSL, E1, STM-1/OC-3 media as well as redundant PSB and TDM buses.



nxT1/E1

TDM
Egress

IP/Packet
&
STM-1/OC-3

High-Speed
Trunk Egress

**3096RC T-DAC**
DSL Concentrator
DSL Concentrator
DSL Concentrator
G.SHDSL Access
Connections

TDM/PSB
Backplane

**6511 Matrix Switch**
Timeslot Mapper

Complete user flexibility allows switching of any time slot from any interface to any port within the system.

## ForeFront System Elements

### ForeFront Next Generation DSL Network Access



Patton's ForeFront Access Solutions for DSL address the new point-of-presence requirements demanded by today's providers operating IP and TDM networks. Using a modular approach, the ForeFront AIS includes all system components to provide DSL access. Fully redundant power and integrated cooling enable the lightweight chassis to scale for density and services. DSL line cards offer the latest ITU/ETSI G.SHDSL technology for true standards based connectivity. Grooming facilities and high speed softswitch allow any-to-any cross-connecting to T1/E1s or STM-1/OC-3 interfaces. Integrated management gives command over the entire system end-to-end and offers tools for fault detection, isolation, and correction.

## Specifications

| | |
|---|---|
| **Line Framing** | DS1-SF, SLC-95, ESF, E1–G.704 basic, CRC-4 multi-frame (G.706 framing), DS3–M23, C-bit parity formats, E3–G.751, G.832 E3, STM-1–G.707, SONET/STS-3–Per ANSI T1.105-2001 |
| **Mapping** | DS1–VT1.5 -> STS-1 SPE, TU-11 -> STM1/VC3, TU-11 -> TUG3 -> STM1/VC4, TU12 -> STM1/VC3, TU-12 -> TUG3 -> STM1/VC4; E1–VT2 -> STS1 SPE, TU-12 -> STM-1/VC3, TU-12 -> TUG3 -> STM-1/VC4; DS3–DS3 -> VC3 -> AU3 -> STS-1 SPE; STM-1 –G.707; SONET/STS3– Per ANSI T1.105.02-2001 |
| **Clocking** | STM-1–G.813; STS-3 - ANSI T1.101-1999, T1.105.09-1995, G4-1244 |
| **Error Counts** | G.821 & G.826 (ES, SSES, US, EB, and BBE; T1.231 & GR-253-CORE ES, SES, US and SEFS |
| **Line Testing** | PRBS per ITU-T 0.151 & 0.152; DS3/E3 Diagnostic & Line Loopback; DS2 Demux Loopback; T1/E1 Diagnostic & Loopback |

| | |
|---|---|
| **Ethernet Ports** | Dual 10/100/1000 Base-T (RJ-45 connector) |
| **STM-1/STS-3 Ports** | Single mode dual SC fiber (20km) per G.957 using 1310 nm lasers per G.652 or Dual 75-Ohm BNC per G.703 |
| **LED Indicators** | LEDs for power, CPU, Dual Ethernet, test mode, egress synchronization, egress trunk status |
| **Management Services** | HTTP, SNMP, TELNET Ethernet, RS-232 Console Port, SYSLOG Client, Remote Software Upgrade via FTP |
| **Alarm Reporting** | Configurable alarms; Remote SNMP Traps; Front Panel LEDs |
| **Compliance** | Safety: UL/CSA per UL1950 (METS) Canadian cMET and CS-03. EMC Directive 89/336/EEC, FCC Part 15, CE Mark, CTR12, CTR13 FCC Part 68. Laser Safety: Class 1, IEC-825-1, 1993 |
| **Environment** | Operating temperature: 14 to 140°F (0 to 60°C); Humidity: 5 to 90%, non-condensing |