APPENDIX A

LEDs

There are a number of LEDs on the bulkheads of many cards in a LightStream 2020 multiservice ATM switch (LS2020 switch). The information provided by the LED is also provided by the StreamView monitor application on the NMS. LEDs serve the following purposes:

- Indicate that basic power is available to the card.
- Guide you to a broken card, or to one that has failed its diagnostics.
- Give an informal indication that some traffic is flowing through the node.
- Indicate the status of parts of the TCS that cannot be obtained via the TCS itself. For example, LEDs indicate which TCS hub is primary. (Problems with TCS hub switchover cannot be diagnosed from the TCS itself.)

The switch card, NP, and line card LEDs are visible from the front of the LS2020 chassis. The LEDs on the access cards are visible from the rear of the chassis.

Note The SAC and the LSAC do not have LEDs.

Fault LEDs

If the fault (FLT) LED on a line card, NP, or switch card is on:

- Determine whether the card's power-on self test (POST) failed by running the **show tcs <slot#>** command in CLI.

  If the POST failed, refer to the chapter "Hardware Troubleshooting" for instructions on running diagnostics on the card. (You may want to bring up the rest of the system first.)

- Determine whether the card's temperature is out of normal range by running the **show tcs <slot#>** command in CLI. Current temperature readings and maximums are listed in the Slot State section of display, near the bottom.

  If the temperature exceeds the warning or shutdown temperature, check the blowers (see the section "General Troubleshooting" in the "Hardware Troubleshooting" chapter) and make sure the air flow into, through, and away from chassis is unrestricted. Note that leaving a chassis open can cause temperature problems. To ensure proper air flow, make sure all components, cards, and bulkhead filler panels are firmly screwed in place.

- Determine whether the card's voltage is out of normal range by running the **show tcs <slot#>** command in CLI. Voltage readings are listed in the Slot Voltage section of display, near the bottom.

If any voltage is out of the normal range, call your customer service representative for instructions on managing the voltage.

- Determine whether the card's application is disabled by running the **show tcs <slot#>** command in CLI.

  If the Application field says Disabled, use the CLI command **set card <slot#> active** to enable the card.

- Make sure the function card and access card in this slot are compatible by checking the cards in the slots at front and rear. Refer to Table 1-3 in the chapter "Hardware Overview" a for compatibility list.

- Determine whether the bulk power supply has failed by running the **show chassis powersupply** command in CLI.

  If the bulk power supply has failed, refer to "General Troubleshooting" in the chapter entitled "Hardware Troubleshooting," and "Replacing a Power Tray" in the chapter entitled "Replacing FRUs."

- If the function card's flash EEPROM is being loaded, wait 7 to 8 minutes. When flash load is complete, the FLT LED goes off.

LED Descriptions

This section (consisting of Table A-1 through Table A-11) describes the LEDs on all LS2020 cards.

Table A-1 LEDs on the Switch Card

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section "LEDs" for more information.
RDY (ready)	Green	Controlled by the TCS hub. Blinks while POST runs. When tests complete and are passed, light stays on continuously. LED is turned off by power-on reset. The READY light indicates that TCS is ready to use either hub as the primary hub, or to take over from the primary in case of failure. This LED remains lit if one port is having a problem, as long as the overall functionality of the board is intact.
TCS	Green	Illuminates when TCS hub has power.
VCC (power)	Green	Illuminates when the board has power.
TCS SEL	Green	Indicates that the TCS hub on this card is primary. (Note that the primary hub and the active switch fabric may not be on the same switchcard.) Console output is directed to the console port of the switch card on which this LED is lit.
BITS OK	Green	Illuminates to indicate the BITS clock is providing a valid clock signal.

Table A-2 LEDs on the NP

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section “LEDs” for more information.
RDY (ready)	Green	Controlled by the TCS slave. Blinks while POST runs. When tests complete and are passed, the light stays on continuously. Turned off by power-on reset.
VCC (power)	Green	Illuminates when main 5V supply on the card is turned on.
TCS	Green	Illuminates when the 5V TCS power supply on the card is active. Is lit whenever the bulk power supply is turned on.
A	Green	Illuminates when the active TCS hub is on the switch card in slot A.
B	Green	Illuminates when the active TCS hub is on the switch card in slot B.
TX	Green	Illuminates when the TSU is sending a non-null cell.
RX	Green	Illuminates when the FSU is receiving a non-null cell.

Table A-3 LEDs on the Low-Speed Line Card

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section “LEDs” for more information.
RDY (ready)	Green	Blinks while POST runs and illuminates continuously when POST completes and passes. Turned off by power-on reset.
VCC (power)	Green	Illuminates when the card’s main 5V supply is within normal levels.
TCS	Green	Illuminates when the 5V TCS supply is within normal levels.
A	Green	Illuminates when the active TCS hub is on the switch card in slot A.
B	Green	Illuminates when the active TCS hub is on the switch card in slot B.
TX	Green	Illuminates when the TSU is sending a non-null cell.
RX	Green	Illuminates when the FSU is receiving a non-null cell.
0 - 7	Green	Illuminates when the port indicated is active.

Table A-4 LEDs on the Medium-Speed Line Card

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section “LEDs” for more information.
RDY (ready)	Green	Blinks while POST runs and illuminates continuously when POST completes and passes. Turned off by power-on reset.
VCC (power)	Green	Illuminates when the card’s main 5V supply is within normal levels.
TCS	Green	Illuminates when the 5V TCS supply is within normal levels.
A	Green	Illuminates when the active TCS hub is on the switch card in slot A.
B	Green	Illuminates when the active TCS hub is on the switch card in slot B.
TX	Green	Illuminates when the TSU is sending a non-null cell.
RX	Green	Illuminates when the FSU is receiving a non-null cell.
0, 1	Green	Illuminates when the port indicated is active.

Table A-5 LEDs on the Packet Line Card

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section “LEDs” for more information.
RDY (ready)	Green	Blinks while POST runs and illuminates continuously when POST completes and passes. Turned off by power-on reset.
VCC (power)	Green	Illuminates when the card’s main 5V supply is within normal levels.
TCS	Green	Illuminates when the 5V TCS supply is within normal levels.
A	Green	Illuminates when the active TCS hub is on the switch card in slot A.
B	Green	Illuminates when the active TCS hub is on the switch card in slot B.
TX	Green	Illuminates when the TSU is sending a non-null cell.
RX	Green	Illuminates when the FSU is receiving a non-null cell.
LN FLT (line fault)	Yellow	Illuminates when at least one port that is configured to be active (port status/ifAdminStatus = up) either has errors or has no cable connected to it. When LN FLT is lit, try the following: • Use the configurator or the CLI command **set port <card#>.<port#> inactive** to turn off any unused ports. • Attach cables to all ports that are in use. • Use the CLI command **show port <card#>.<port#> status** to determine whether there are errors on the line.
LNS OK (lines OK)	Green	Illuminates when at least one port that is configured to be up is functioning properly. This LED turns off if all ports’ administrative and operational statuses are down, or if all active ports have errors or missing cables.

Table A-6 LEDs on the Cell Line Card

Name	Color	Description
FLT (fault)	Yellow	Turned on by power-on reset, turned off when POST passes. Shines steadily to signal a problem. See the section “LEDs” for more information.
RDY (ready)	Green	Blinks while POST runs and illuminates continuously when POST completes and passes. Turned off by power-on reset.
VCC (power)	Green	Illuminates when the card’s main 5V supply is within normal levels.
TCS	Green	Illuminates when the 5V TCS supply is within normal levels.
A	Green	Illuminates when the active TCS hub is on the switch card in slot A.
B	Green	Illuminates when the active TCS hub is on the switch card in slot B.
TX	Green	Illuminates when the TSU is sending a non-null cell.
RX	Green	Illuminates when the FSU is receiving a non-null cell.

Name	Color	Description
LN FLT (line fault)	Yellow	Illuminates when at least one port that is configured to be active (port status/ifAdminStatus = up) either has errors or has no cable connected to it. When LN FLT is lit, try the following: • Use the configurator or the CLI command **set port <card#>.<port#> inactive** to turn off any unused ports. • Attach cables to all ports that are in use. • Use the CLI command **show port <card#>.<port#> status** to determine whether there are errors on the line.
LNS OK (lines OK)	Green	Illuminates when at least one port that is configured to be up is functioning properly. This LED turns off if all ports' administrative and operational statuses are down, or if all active ports have errors or missing cables.

Table A-7 LEDs on the T3 and E3 Access Cards (MSAC, T3AC and E3AC)

Name			
MSAC	T3AC and E3AC	Color	Description
RXC (receive clock)	R	Green	Illuminates when a DS3 transmitter is present at the other end of the connection. Goes out to indicate that clock is not being received.
OOF (out of frame)	O	Yellow	Illuminates when the DS3 transmitter at the other end of the connection is not sending framing pulses.
FERF (far end receive failure)	F	Yellow	Illuminates when the DS3 transmitter at the other end of the connection is not receiving framing pulses from this port.
AIS (alarm indication signal)	A	Yellow	Illuminates when this port receives an indication that an error has occurred in an upstream device.

Table A-8 LEDs on the Ethernet Access Cards (EAC and FEAC)

Name	Color	Description
0 - 7 (port LEDs)	Green	Illuminates when the port indicated is receiving or transmitting packets.
FLT[1] (fault)	Yellow	This LED echoes the state of the LN FLT (line fault) LED on the PLC in the same slot. (PLC LEDs are described in Table A-5.)
VCC[1] (power)	Green	Illuminates when the card's main 5V supply is within normal levels.

[1]These LEDs are not present on the FEAC.

Table A-9 LEDs on the FDDI Access Card

Name	Color	Description
FLT (fault)	Yellow	This LED echoes the state of the LN FLT (line fault) LED on the PLC in the same slot. (PLC LEDs are described in Table A-5.)
VCC (power)	Green	Illuminates when the card's main 5V supply is within normal levels.
0A, 0B, 1A, 1B (port LEDs)	Green	Illuminates when the port indicated is ready to transmit or receive data.

Table A-10 LEDs on the T1/E1 CEMAC

Name	Color	Description
LOS (loss of signal)	Yellow	Illuminates if this port is not receiving an input signal.
AIS (alarm indication signal)	Yellow	Illuminates when this port receives an indication that an error has occurred in an upstream device.

Table A-11 LEDs on the OC-3C Access Cards (SM and MM)

Name	Color	Description
SD (signal detect)	Green	Illuminates when an incoming signal is detected on the port indicated. If this LED goes out, it may indicate either a loose cable or a fault in the remote device.
OOF (out of frame)	Yellow	Illuminates when the device at the other end of the connection is not sending framing pulses.
FERF (far end receive failure)	Yellow	Illuminates when the device at the other end of the connection is not receiving framing pulses from this port.
AIS (alarm indication signal)	Yellow	Illuminates when this port receives an indication that an error has occurred in an upstream device.
Safe (Single mode cards only)	Green	Illuminates when the transmit laser on the port is shut off, so there is no danger in looking at the connectors.