Low Power SCSI

- Laptop computers need to limit the power for longer battery life
  - Battery power units may not be able to provide TERMPWR for the far end terminators.
  - Battery power units may not be able to power the terminator inside in normal power mode when an external cable is attached, only power in a low power internal cable connection.

- Energy Star/Green PCs and workstations are required to reduce power with inactivity.
  - Reduce Termination power
  - Sleep mode, and bus shut down.
Low Power SCSI

- High performance and low power must work together.
  - Size TERMPWR fusing for the application, 1 Amp min for 8 bit bus and 1.5 Amp for 16 bit bus.
  - Regulated terminators reduce the TERMPWR current.
  - Low power mode for the terminators on short bus configurations, automatic termination current adjustment when external cables are added.

- Power Down Modes required when the SCSI devices are not in use, this includes powering down the SCSI bus, Termination, and controllers.
  - No device errors when the bus is powered down or hang conditions.
Low Power SCSI

- Powered down devices
  - Bus interfaces must be designed for devices that are not required for applications to be turned off.
  - Power off specifications must be less than the maximum capacitance and meet the input current requirements.

- 3.3 Volt operation compatible with 5.0 Volt devices.
  - Termpwr 2.7 < 5.25 Volts to the terminators at the far end of the cable.
  - Units may require TERMPWR to be supplied externally for the controller terminator to run in normal power mode versus low power mode when running the internal bus only.
Differential Lower Power

- **Alternative Differential Termination**
  - Reduce the Idle TERMPWR Current
    - 166.59 mA @ 5 Volts, Current Passive
    - 25 mA Alternate
  - Line Active Driver Current
    - 33 mA / driver, 2 Volt Typical Signal
    - 99 mW/driver @ 5 V, 43 mW/ driver @ 3.3 Volts
  - Reduce the TERMPWR Transient Current

- **AC/DC Bias Termination**
  - AC 120 ohm Termination
  - DC Bias for Line Idle
    - 1 mA/Driver, 2 Volt Typical Signal
    - 3 mW/Driver @ 5V, 1.3 mW/Driver @ 3.3V
Differential Alternate Termination

Signal -

Bias 0.5 to 1.0 Volts

Signal +

60 Ohms

150 Ohms

60 Ohms

2.0 Volt Reference
Differential Alternate Termination

Signal -

60 Ohms

1 KOhms

Bias 0.5 to 1.0 Volts

60 Ohms

1 KOhms

Signal +

2.0 Volt Reference

150 Ohms