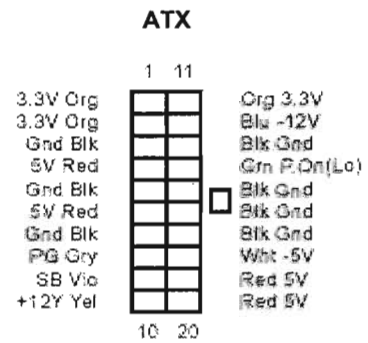
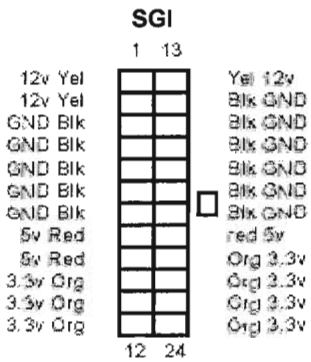
The SGI320's Power Supply Unit is a proprietary one. Many users have often asked whether it is possible to get a standard ATX PSU to work with their workstations, either as an upgrade to a failed PSU or more rarely to install a more powerful unit. The answer is a resounding yes!

A note on diagrams

The perspective in diagrams is depicted in the following manner: for plugs, you are looking at the connector end of the plug, opposite where the wires enter; for connectors you are looking to the sockets, opposite the side soldered to the motherboard.

Following are two schematic diagrams comparing a standard ATX power supply plug with the SGI320 plug:





PG = Power Good
SB = +5 vsb or standby power (always ON)

Procedure

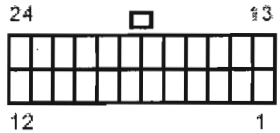
A standard ATX v2.01 compliant PSU with remote ON / OFF circuit can be made to work quite nicely with the SGI320. Begin by removing five wires from the ATX plug: the -12v (usually blue wire) at pin #12, the +5v standby (purple) at pin #9, the 'Power Good' signal (grey) at pin #8, the 'remote power ON / OFF' (green) at pin #14 and finally the -5vdc (white) at pin #18.

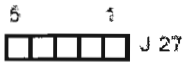
The first four signal wires mentioned (plus any +3.3v lead from the PSU to provide the 3.3v sense at pin #2) must be moved to a new 5-pin flat connector (that you must supply) that will plug into the 320 motherboard at the auxiliary power connector labeled J27 and located immediately to the right of the main power connector. The -5vdc wire is not used at all on the 320; it may be clipped off and the end safely taped to avoid shortening.

The remaining wires (supplying the +12v, +5v, +3.3v and ground) must be rearranged on the ATX connector according to the following diagram of the 320 main power connector (note: the standard 20-pin ATX plug supplied on your replacement PSU may be used in the 24-pin SGI motherboard connector, however you may want to invest in a new 24-pin plug to supply the additional contacts at pins #21-24 to prevent the possibility of unwanted voltage drops and over-current problems if you plan to load the PCI slots with power hungry devices). The four signal wires removed from the ATX

connector must be added to a new 5-pin flat connector in the arrangement indicated by the accompanying drawing labeled Aux. Connector J27.

SGI 320 Motherboard Power Connectors





Main Connector

vtg	colour	pin	vtg	colour	pin
+12v	yellow	13	+12v	yellow	1
GND	black	14	+12v	yellow	2
GND	black	15	GND	black	3
GND	black	16	GND	black	4
GND	black	17	GND	black	5
GND	black	18	GND	black	6
GND	black	19	GND	black	7
+5v	red	20	+5v	red	8
+3.3v	orange	21	+5v	red	9
+3.3v	orange	22	+3.3v	orange	10
+3.3v	orange	23	+3.3v	orange	11
+3.3v	orange	24	+3.3v	orange	12

Aux Connector J27

vtg	colour	pin
1	blue	-12v
2	brown	+3.3 sense
3	grey	+5vsb
4	white	power good
5	purple	power on/off

Replacing the SGI320's PSU may also solve a much reported PSU bug reported by a number of users over the years. On some occasions, the system may not boot after pressing the power button. The fix usually involves unplugging the power cord from the power strip, and/or pressing the power button on the front of the case multiple times, after unplugging the cord. The problem has been acknowledged by SGI but no consistent fix has been provided thus far.
