

ATX power supply connector pinout

[Ask a question](#)

[Comment](#)

[Edit](#)

[Submit New](#)

v 1.x with 20 pin connector was widely used at PC motherboard.

Replaced by v 2.x with 24 pin connector

ATX specification includes not only Power Supply Unit, but also interface to case and motherboard. In addition to the old AT standard, ATX 2.0 has one extra voltage line available (+3.3V), a connector chain-lined to the single 20-pin and a power-on wire that allows Software to turn off the PSU. Nowadays this standard is obsolete and superseded by [ATX 2.2 \(24 pin\)](#).

The ATX specification requires the power supply to produce three main outputs, +3.3 V (± 0.165 V), +5 V (± 0.25 V) and +12 V (± 0.60 V). Low-power -12 V (± 1.2 V) and 5 VSB (standby) (± 0.25 V) supplies are also required. A -5 V output was originally required because it was supplied on the [ISA bus](#), but it became obsolete with the removal of the ISA bus in modern PCs and has been removed in later versions of the ATX standard.

Originally the motherboard was powered by one 20-pin connector. Current version of ATX12V 2.x power supply provides two connectors for the motherboard: a [4-pin auxiliary connector](#) providing additional power to the CPU, and a main [24-pin ATX 2 power supply connector](#), an extension of the original 20-pin version.

ATX connector pinout

Pin	Name	Color	Description
1	3.3V	Orange	+3.3 VDC
2	3.3V	Orange	+3.3 VDC
3	COM	Black	Ground
4	5V	Red	+5 VDC
5	COM	Black	Ground
6	5V	Red	+5 VDC
7	COM	Black	Ground
8	PWR_OK	Gray	Power Ok is a status signal generated by the power supply to notify the computer that the DC operating voltages are within the ranges required for proper computer operation (+5 VDC when power is Ok when PSU is turned ON)
9	5VSB	Purple	+5 VDC Standby Voltage (max 10mA) 500mA or more typical
10	12V	Yellow	+12 VDC (may sometimes have a colored stripe to indicate which rail it's on)
11	3.3V	Orange	+3.3 VDC
12	-12V	Blue	-12 VDC
13	COM	Black	Ground
14	/PS_ON	Green	Power Supply On (active low). Short this pin to GND to switch power supply ON, disconnect from GND to switch OFF.
15	COM	Black	Ground
16	COM	Black	Ground
17	COM	Black	Ground
18	-5V	White	-5 VDC (2002 v1.2 made optional, 2004 v2.01 removed from specification)
19	5V	Red	+5 VDC
20	5V	Red	+5 VDC

/PS_ON activated by pressing and releasing the power button while the

power supply is in standby mode. Shorting the pin 14 (/PS_ON) to GND (COM) causes power supply to switch ON.

In several power supply units pin-12 may be Brown (not Blue), pin-18 may be Blue (not White), and pin-8 may be White (not Gray). In addition, some PSU violate color coding of wires.

Pin 9 (standby) supply 5V even when PSU is turned off. Pin 14 goes from 0 to 3.7 when PSU switch is turned on.

Source(s) of this and additional information: [ATX Spec v2.03](#) at [Platform Development Support](#), from [Hardware Book](#),

http://www.formfactors.org/developer%5Cspecs%5CPSU_DG_rev_1_1.pdf

Table 21, I have a old (2001) computer w FSP235-60GT 235W power supply w 20 pin connector, None

ATX 2.2 and later (ATX12V 2) is common ATX standard, 24 pin connector.

Changes to ATX standard were made to support 75 watt PCI Express requirements. Most power is now provided on 12 V rails and the power on 3.3 V and 5 V rails was significantly reduced. The standard specifies that two independent 12 V rails (12 V2 for the 4 pin connector and 12 V1 for everything else) with independent overcurrent protection are needed to meet the power requirements.

New ATX v 2.2 uses new connector, but most motherboards nowadays allow to use an old ATX v 1.x power supply with [ATX 20 pin connector](#) - it connects to 24 pin motherboard receptacle.

Pin	Name	Color	Description
1	3.3V	Orange	+3.3 VDC
2	3.3V	Orange	+3.3 VDC

3	COM	Black	Ground
4	5V	Red	+5 VDC
5	COM	Black	Ground
6	5V	Red	+5 VDC
7	COM	Black	Ground
8	PWR_OK	Gray	Power Ok is a status signal generated by the power supply to notify the computer that the DC operating voltages are within the ranges required for proper computer operation (+5 VDC when power is Ok)
9	5VSB	Purple	+5 VDC Standby Voltage (max 10mA, max 2A in ATX 2.2 spec)
10	12V	Yellow	+12 VDC
11	12V	Yellow	+12 VDC
12	3.3V	Orange	+3.3 VDC
13	3.3V	Orange	+3.3 VDC. ATX V2.3 / EPS12V V2.92 both define that the PSU has to use remote sensing to compensate cable drops on the 3.3V line. Because of this there is an additional brown cable crimped together with the orange cable either to pin 13 (ATX) or pin 1 (EPS12V).
14	-12V	Blue	-12 VDC
15	COM	Black	Ground
16	/PS_ON	Green	Power Supply On (active low). Short this pin to GND to switch power supply ON, disconnect from GND to switch OFF.
17	COM	Black	Ground
18	COM	Black	Ground
19	COM	Black	Ground
20	-5V	White	-5 VDC (this is optional on newer ATX-2 supplies, it is for use with older AT class expansion cards and can be omitted on newer units)
21	+5V	Red	+5 VDC
22	+5V	Red	+5 VDC

23	+5V	Red	+5 VDC
24	COM	Black	Ground

/PSON activated by pressing and releasing the power button while the power supply is in standby mode. Activating /PSON connects the power supply's /PSON input to ground, thereby switching the power supply to full-on condition.

18 [AWG](#) is recommended for all wires except pin 11, which should be 22 AWG. For 300W configurations 16 AWG is recommended.