

			Date
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DEPARTMENT	MECHATRONIC ENGINEERING TECHNOLOGY		Ref. No:
SECTION	PERFORM OPERATION AND NETWORK SYSTEM CHECK		
COURSE	Junior Automation Technician		Course code No
BLOCK	Practice on Pc Assembly and networking		
UNIT	PC Assembly		
SEGMENT	10.01 Carry Out Operation And Network Operation Check 10.02 Carry Out Operation And System Functionality Check 10.03 Monitor Operation And Network Sys. Condition and Functionality		DMB1201
CANDIDATE			Semester
DUTY		TASK	Reg. No



ATX power supply interior

Legend:

- A - bridge rectifier
- B - input filter capacitors
- between B and C - Heatsink of high-voltage transistors
- C - transformer
- between C and D - Heatsink of low-voltage, high-current rectifiers
- D - output filter coil
- E - output filter capacitors

A **power supply unit (PSU)** converts mains AC to low-voltage regulated DC power for the internal components of a computer. Most modern desktop personal computer power supplies conform to the ATX specification, which includes form factor and voltage tolerances. While an ATX power supply is connected to the mains supply, it always provides a 5 V standby (5VSB) voltage so that the standby functions on the computer and certain peripherals are powered. ATX power supplies are turned on and off by a signal from the motherboard. They also provide a signal to the motherboard to indicate when the DC voltages are in spec, so that the computer is able to safely power up and boot.

The ATX specification requires the power supply to produce three main outputs, +3.3 V, +5 V and +12 V. Low-power -12 V and 5 V_{SB} (standby) 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. An ATX power supply provides a number of peripheral power connectors, and (in modern systems) two connectors for the motherboard: a 4-pin auxiliary connector providing additional power to the CPU, and a main 24-pin power supply connector, an extension of the original 20-pin version.

Four wires have special functions:

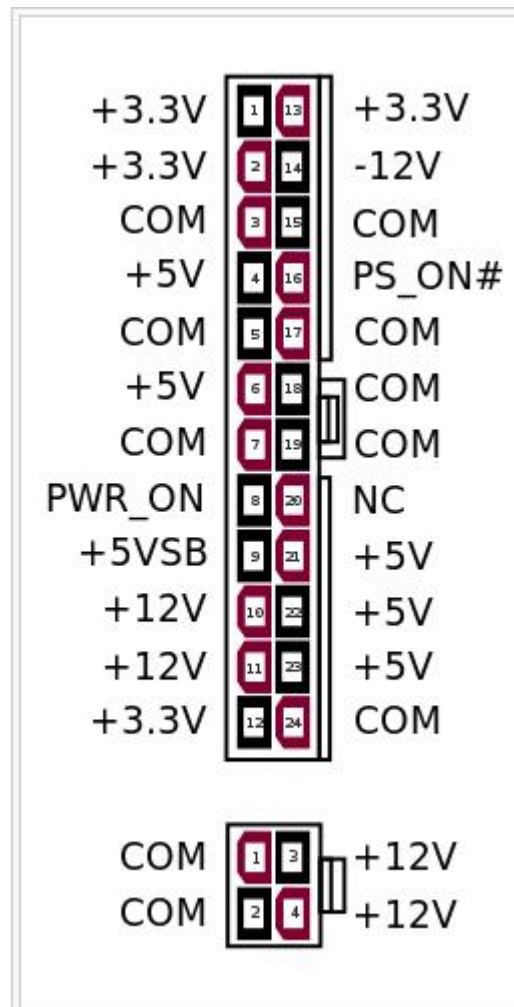
- **PS_ON#** or *Power on* is a signal from the motherboard to the power supply. When the line is connected to ground (by the motherboard), the power supply turns on. It is internally pulled up to +5 V inside the power supply.
- **PWR_OK** or *Power good* is an output from the power supply that indicates that its output has stabilized and is ready for use. It remains low for a brief time (100–500 ms) after the PS_ON# signal is pulled low.^[10]
- **+5 V_{SB}** or *+5 V standby* supplies power even when the rest of the supply lines are off. This can be used to power the circuitry that controls the Power On signal.
- **+3.3 V sense** should be connected to the +3.3 V on the motherboard or its power connector. This connection allows for *remote sensing* of the voltage drop in the power supply wiring.

Generally, supply voltages must be within $\pm 5\%$ of their nominal values at all times. The little-used negative supply voltages, however, have a $\pm 10\%$ tolerance. There is a specification for ripple in a 10 Hz–20 MHz bandwidth:

(sumber. <http://en.wikipedia.org/wiki/ATX>)

**24-pin ATX12V 2.x power supply connector
(20-pin omits the last four: 11, 12, 23 and 24)**

Color	Signal	Pin	Pin	Signal	Color
Orange	+3.3 V	1	13	+3.3 V	Orange
				+3.3 V sense	Brown
Orange	+3.3 V	2	14	-12 V	Blue
Black	Ground	3	15	Ground	Black
Red	+5 V	4	16	Power on	Green
Black	Ground	5	17	Ground	Black
Red	+5 V	6	18	Ground	Black
Black	Ground	7	19	Ground	Black
Grey	Power good	8	20	Reserved	N/C
Purple	+5 V standby	9	21	+5 V	Red
Yellow	+12 V	10	22	+5 V	Red
Yellow	+12 V	11	23	+5 V	Red
Orange	+3.3 V	12	24	Ground	Black



**ATX 2.0 motherboard power connectors
(bottom view of plug).**

Lengkapkan jadual dibawah dengan data yang diperolehi semasa melakukan pemeriksaan unit bekalan kuasa komputer.

Unit 1

+Ve \ -Ve	Black	Orange	Pink	Purple	Brown	Red	Yellow	Gray
Black								
Orange								
Pink								
Purple								
Brown								
Red								
Yellow								
Gray								

Unit 2

+Ve \ -Ve	Black	Orange	Pink	Purple	Brown	Red	Yellow	Gray
Black								
Orange								
Pink								
Purple								
Brown								
Red								
Yellow								
Gray								