



# Intel® NetStructure™ ZT 6303 250-Watt Hot Swap AC Power Supply

## Product Overview

The Intel® ZT 6303 Hot Swap AC Power Supply is a highly reliable modular package designed for AC power input systems. Extra-high current density allows this unit to deliver up to 40 amperes on either the +5 or +3.3 volt outputs at 50 C. This highly dense, hot swap, redundant supply is ideally suited for telecommunications, industrial automation and a variety of embedded computer applications utilizing the CompactPCI\* 3U x 8HP x 160 mm form factor.

The universal input voltage range is 90 to 264VAC @ 47 to 63 Hz with remote sense and active current sharing. Four outputs are capable of providing total combined power of 250W for +3.3VDC, +5VDC, and ±12VDC with independent output regulation. The low-cost unit meets the electrical and mechanical requirements of the PICMG\* specification for CompactPCI systems. It utilizes a PICMG 2.11-compliant 47-pin power connector to provide efficient, effective connectivity, and is UL, CSA, TUV and CE certified.

## Product Highlights

- Hot swap N+1 load sharing
- Delivers a total of 40A for the +5V and +3.3V outputs (no minimum load restrictions)
- Protection features:
  - Output Overvoltage protection
  - Output Overcurrent protection
  - Overtemperature protection
- Status LEDs—Power Fail, Input Good
- Status output signals—(DEG#), (FAL#)
- Remote sense and active share on +3.3V, +5V, +12V



- Inhibit (INH#) and Enable (EN#) Inputs (open drain, TTL compatible)
- PICMG 2.11-compliant 47-pin connector
- Fully compliant to PICMG 2.11 CompactPCI Specification

## Design Elements

### Operation

The ZT 6303 250W power supply utilizes switching technology to achieve its small size and large power output. An EMI-filtered universal input automatically accepts AC input voltages from 90 to 264V. Optionally, two or more power supplies can be used to implement an N+1, load sharing, fault tolerant system.

### Load Sharing and N+1 Redundancy

Two power supplies can share the same output load. These two supplies each supply approximately 50 percent of the total output power during normal operation, although either is capable of powering the entire system in the event that the other should fail (with a 250W load). This feature increases overall system reliability by

## Design Elements (continued)

sharing the load responsibilities. Additional power supplies may be used to implement true N+1 load sharing (i.e., a 500W system requires two power supplies, plus a third for redundancy).

### Hot Swap

The power supplies can be inserted or removed from the system without disturbing operation or reducing the reliability of any associated devices.

### Fault Tolerant

A failed power supply will not disturb the operation of the system if a redundant power supply is operating in the system.

### Power Factor Correction

Power factor correction is utilized on the Intel® ZT 6303 to conserve power and decrease energy costs. The power factor correction circuitry also achieves reduced power line harmonics.

### Status LEDs

Two status LED indicators are visible from the front of the power supply. The green "INPUT OK" LED indicates that the input voltage is present. The red "FAULT" LED indicates a failed power supply or input source.

### Remote Sense

Remote sense on the +3.3V, +5V, and +12V power supply outputs compensate for connector, backplane, and wiring voltage drops.

### Inhibit/Enable Inputs

The Inhibit (INH#) input signal on the rear connector will turn off the outputs when connected to logic ground. The Enable (EN#) input must be connected to logic ground for proper operation of the supply; this signal input is used as the last-mate/first-break contact for hot swap operation. Both signals are open-drain TTL compatible inputs.

### System Notification

Two fault outputs are available on the rear connector for system notification. One output (DEG#) is an open-drain, low-true signal that indicates the internal temperature is approaching the maximum internal operating temperature. If action does not reverse the internal temperature rise, the supply will shut off the outputs. The second output (FAL#) is an open-drain, low-true signal that indicates if any of the outputs have failed and/or the input voltage has dropped to less than 85VAC.

## Specifications

### Input Specifications

Input Voltage Range	85-264VAC
Input Frequency Range AC	47 to 63 Hz
Hold-up Time	20 ms
Input Protection	internal input line fuse
Inrush Surge Current	30A max., cold-start
Internal Switching Frequency	125-145 kHz
Efficiency	80% @ full rated load, 115VAC
Minimum Load (V1, V2, V3)	None
Minimum Load on V3 required to maintain regulation on V4	75% of V4
Output Power @ 250 LFM forced-air cooling	200W
Output Power @ 400 LFM forced-air cooling	250W
Overshoot/Undershoot at turn-on	0%
Turn-on Delay	150 ms to initial output stabilization
Initial Setting Accuracy	+/- 1%

## Specifications (continued)

### Environmental

Operating Temperature @ 100% load	0 to 50 C
Operating Temperature @ 50% load	0 to 70 C
Storage Temperature	-40 to +85 C
Non-Condensing Relative Humidity	5 to 95%
Shock @ Peak Acceleration	20 GPK
Random Vibration @ 10 Hz to 2 KHz	6 GRMS
Operating Altitude	10K ASL ft.
Non-Operating Altitude	40K ASL ft.
Weight	1.75 lbs (0.8 Kg)
Overall Size	5.07"H x 1.60"W x 6.40"D (128.7 mm x 40.6 mm x 162.5 mm)

### Safety, Regulatory, and EMI Specifications

Safety Agency Approvals	UL1950, cUL1950, TUV EN60950
Conducted RFI	Meets FCC Class A, EN55022/CISPR 22 Class A
Dielectric Withstand Voltage	4243VDC (Input to Output per EN60950)
ESD Susceptibility	8kV per EN61000-4-2, level 4
Radiated Susceptibility:	10 V/M per EN61000-4-3, level 3
EFT/Burst	+/- 2kV per EN61000-4-4, level 3
Line-to-Line Input Surge	1kV per EN61000-4-5, level 3
Line-to-Ground Input Surge	2kV per EN61000-4-5, level 3
Conducted Disturbance	3V per EN61000-4-6, level 2
Insulation Resistance (Input to Output)	10M $\Omega$

### Internal Protection

- Overvoltage Protection: 120-130% Vnom (latch style overvoltage protection)
- Overload Protection: Fully protected against output overload and short circuit, with automatic recovery upon removal of overload condition
- Overtemperature Protection: System shutdown due to excessive internal temperature, automatic reset

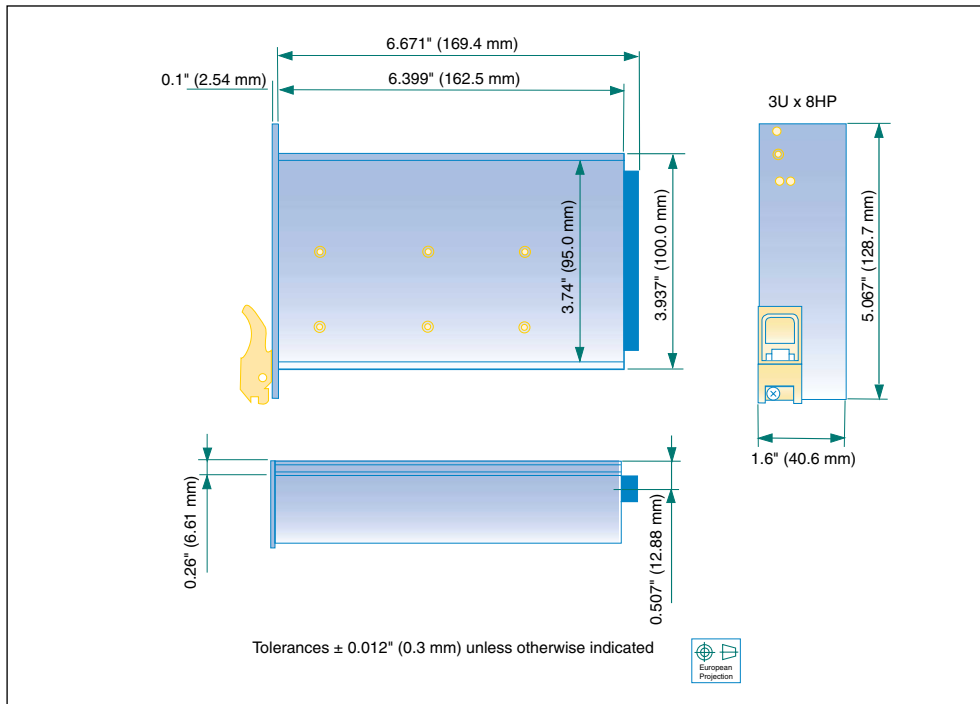
### Output Specifications

Output Voltage	Output Current	Line Regulation	Load Regulation	Ripple & Noise pk-pk <sup>*</sup>
+5V	40A	0.5%	+10/-5%	2%
+3.3V	40A	0.5%	+/-5%	2%
+12V	5.5A	0.5%	+/-5%	2.5%
-12V	1.5A	0.5%	+/-5%	2.5%

<sup>\*</sup> Maximum peak-to-peak expressed as a percentage of output voltage, 20 MHz bandwidth

## Ordering Information

The Intel® NetStructure™ ZT 6303 250-Watt Hot Swap AC Power Supply is available off-the-shelf. Custom configuration options may be available. Please contact Intel Sales Support for more information.



CPS Series - 250-Watt

### Pin Allocation Chart

PIN	PIN-LENGTH TYPE †	SIGNAL NAME	DESCRIPTION	PIN	PIN-LENGTH TYPE †	SIGNAL NAME	DESCRIPTION
1-4	M	V1	V1 OUTPUT	32	M	NC	NOT CONNECTED
5-12	M	RTN	V1 and V2 RETURN	33	M	V2 SENSE	V2 REMOTE SENSE
13-18	M	V2	V2 OUTPUT	34	M	S RTN	SENSE RETURN
19	M	RTN	V3 RETURN	35	M	V1SHARE	V1 CURRENT SHARE
20	M	V3	V3 OUTPUT	36	M	V3SENSE	V3 REMOTE SENSE
21	M	V4	V4 OUTPUT	37	M	NC	NOT CONNECTED
22	M	RTN	SIGNAL RETURN	38	M	DEG#	DEGRADE SIGNAL
23	M	RESERVED	RESERVED	39	M	INH#	INHIBIT
24	M	RTN	V4 RETURN	40	M	NC	NOT CONNECTED
25	M	NC	NOT CONNECTED	41	M	V2SHARE	V2 CURRENT SHARE
26	M	RESERVED	RESERVED	42	M	FAL#	FAIL SIGNAL
27	S	EN#	ENABLE	43	M	NC	NOT CONNECTED
28	M	NC	NOT CONNECTED	44	M	V3SHARE	V3 CURRENT SHARE
29	M	NC	NOT CONNECTED	45	L	CGND	CHASSIS GROUND
30	M	V1SENSE	V1 REMOTE SENSE	46	M	ACN	AC INPUT NEUTRAL
31	M	NC	NOT CONNECTED	47	M	ACL	AC INPUT LINE

† L = Long-Length Pins, M = Medium-Length Pins, S= Short-Length Pins

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