ATX12V
Power Supply Design Addendum for 150 Watt PCI-Express* Power

Version 1.0

Revision History

Version	Release Date	Notes	
1.0	June 2004	• First public release	

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Contents

Figures

Tables

1. Scope

This addendum provides information for development of a power supply to support 150W PCI-Express* graphic card power requirements for a high end performance ATX system. Refer to *ATX12V Power Supply Design Guide* version 2.0 or greater for important details regarding the power supply.

2. Electrical

Table 1 Typical Power Distribution for ATX12V Configuration with support for 150W PCI-Express* Graphics

Output	Min. Current (amps)	Max. Current (amps)	Peak Current (amps)
+12 V1DC[1, 2]	1	18	
+12 V2DC[1, 2]	1	16	18
+5 VDC	0.3	25	
+3.3 VDC	0.5	20	
-12 VDC	0	0.3	
+5 VSB	0	2	2.5

Note:
Total 5V & 3.3V output power combined should not exceed 130 Watts
> (1) 12V1DC should have separate current limit circuits to meet 240VA safety requirements
> (2) 12V2DC supports processor VR and should have separate current limit
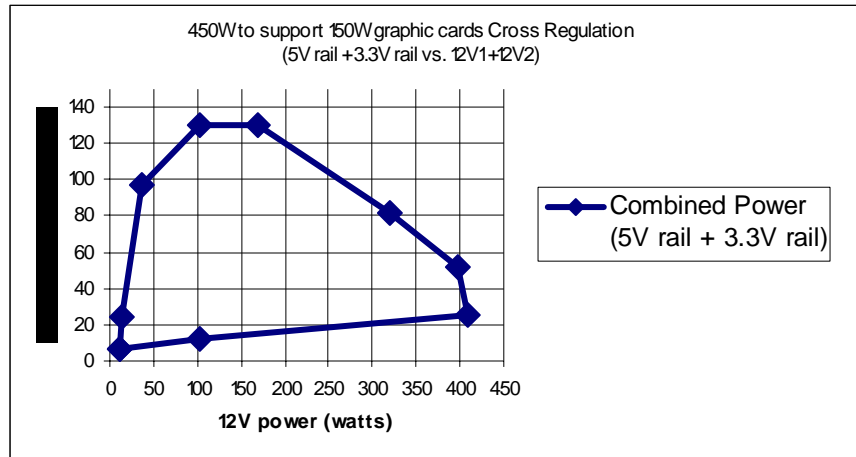
Figure 1 Cross Loading Graph

450W to support 150W graphic cards Cross Regulation
(5V rail + 3.3V rail vs. 12V1+12V2)

Combined Power
(5V rail + 3.3V rail)

12V power (watts)

Table 2 Loading Table for Efficiency Measurements

400W (loading shown in Amps)						
Loading	+12V1	+12V2	+5V	+3.3V	-12V	+5Vsb
Full	16	14	9	11	0.3	1.0
Typical	9.5	6	3	5	0.1	1.0
Light	3	3	1	3	0.0	1.0

3. PCI-Express* Power Connector:

A 6 pin (2 x 3) Molex P/N 45559-0002 or equivalent connector is required in additional to standard ATX12V DC connectors. The details of the additional connector and its pin out are shown.

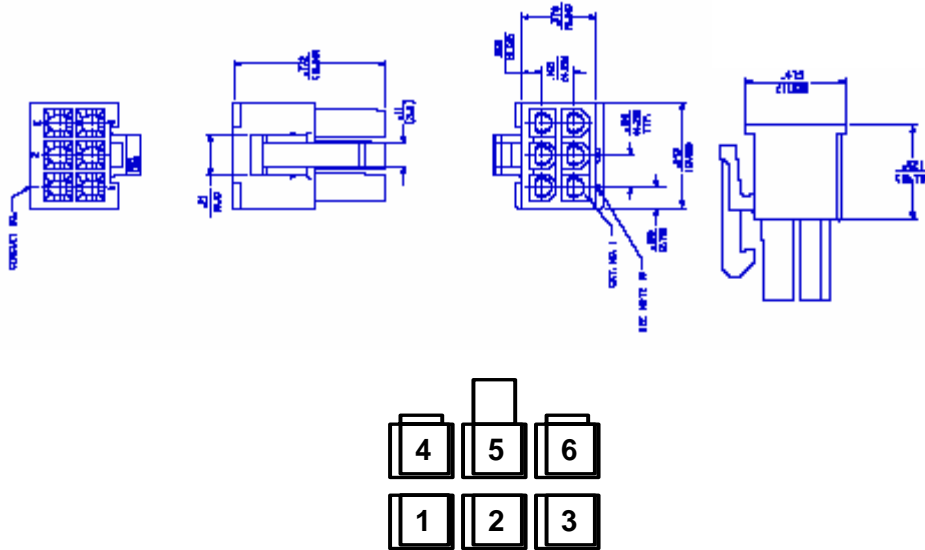**Figure 2 Details of 2 x 3 PCI-Express* Graphics Power Connector (Molex* P/N 45559-0002 or equivalent)**

Table 3 2 x3 PCI-Express* Graphics Power Connector

Connector: Molex P/N 45559-0002 or equivalent
6 Connector Receptacle Housing Special Fit

Pin	Signal	Color
1	+12V1VDC	Yellow
2	+12V1VDC	Yellow
3	+12V1VDC	Yellow
4	GND	Black
5	GND	Black (Used to sense connector on Graphics Card)
6	GND	Black