System Specification

NVIDIA Tesla D870 Deskside GPU Computing System

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Document Change History

Version	Date	Responsible	Description of Change
01	January 14, 2008	SG, SM	Initial Release

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NVIDIA Tesla D870 Overview

The NVIDIA® Tesla™ D870 Deskside Computing System features two Tesla graphics processing units (GPUs) and can be used either alongside a workstation or alternatively, two deskside systems can be rack-mounted for four Tesla GPUs in a 3U configuration (it is possible to rack-mount just one deskside unit).

The Tesla D870 connects to a host workstation via a low-power PCI Express ×16 or ×8 adapter card.

Key Specifications

Computing Processors

- Two Tesla C870 GPUs
  - 128 thread processors per GPU, each with a single-precision floating point
- 3 GB of total memory (1.5 GB dedicated memory per GPU)

Mechanical Overview

- Physical Dimensions
  - Tower desktop: 9.54 inches high × 5.94 inches wide × 20.6 inches deep
  - Rack Mount: 5.25 inches (3U) high × 8.5 inches wide × 18 inches deep
- Host Adapter Card
  - PCI Express ×16 or ×8: small form factor, passive heat sink (peak power dissipation 10 W)
- External Connectors
  - 2 PCI Express cable connectors: 2 meter length

Operating Environment

- Quiet operation: 40 dB, suitable for office environment
- Power: 520 W (maximum), 100-240 VAC Autosensing
- Temperature: 5 degrees Celsius to 35 degrees Celsius
- Relative Humidity: 10 % to 80 % non-condensing

System Architecture

The Tesla D870 GPU computing system is based on the 8-Series GPU from NVIDIA. It can be connected to a single host system via a PCI Express connection as shown in Figure 1.

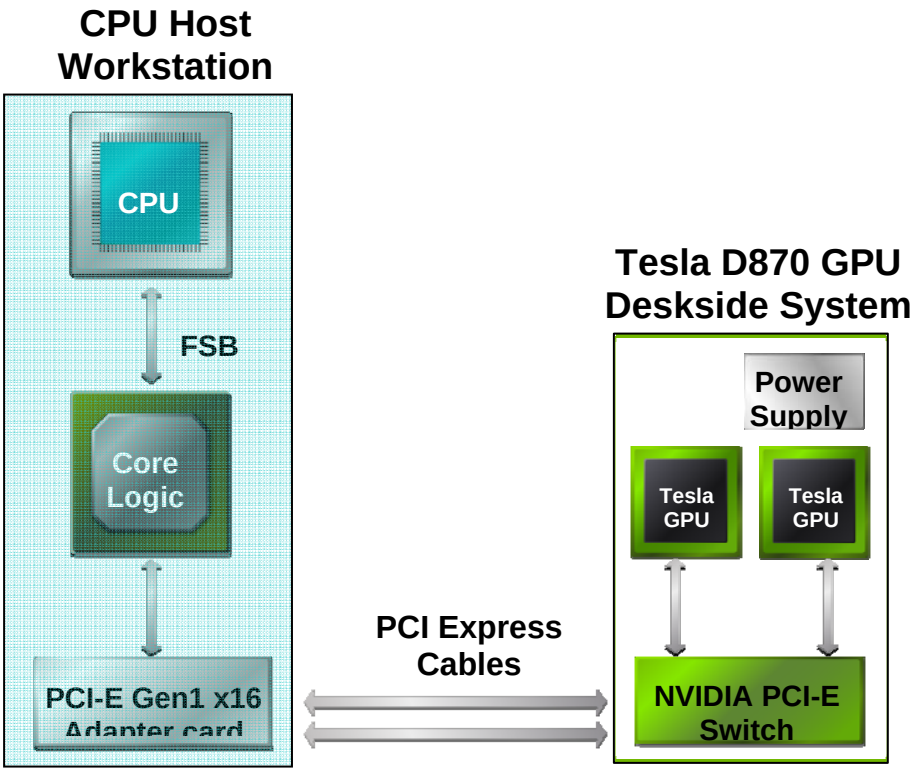

Figure 1. Tesla D870 GPU Computing System Architecture

Configuration

The Tesla D870 has one system configuration as listed in Table 1. Geographical SKUs have localized power cords but the system configuration is the same.

Table 1. System Configuration

Specification	Description
SKU references	920-20375-0001-000 (Americas/Europe) 920-20375-0002-000 (Japan) 920-20375-0003-000 (China/Taiwan)
GPU	2 Tesla C870 GPUs
GPU Processor clock	1350 MHz
GPU Memory clock	800 MHz
Memory configuration	3.0 GB total configured as 1.5 GB per GPU
Memory I/O	384-bit per GPU
System I/O	1 x16 PCI Express cable connector
PCI Express cables	2 cables, 2 meter length

Table 2. SKUs for Rack Mount Kit and x8 Host Interface Card

SKU References	Description
930-10338-0000-000	PCI Express x8 host interface adaptor card
930-50375-0000-000	Rack mount kit

Mechanical Specification

System Chassis

The Tesla D870 can be used as a deskside unit or alternatively, two deskside systems can be rack-mounted for four Tesla GPUs in a 3U configuration. The rack-mounted deskside conforms to the EIA 310E specification for 19" 4-post racks with 900 mm to 1000 mm depth.

Note: It is also possible to rack-mount a single deskside in a 3U configuration.

The chassis dimensions are:

- Tower desktop: 9.54 inches high × 5.94 inches wide × 20.6 inches deep
- Rack Mount: 5.25 inches (3U) high × 8.5 inches wide × 18 inches deep

Figure 2. Tesla D870 Deskside

Figure 3. Tesla D870 Rack-Mounted

Host Adapter Card

The NVIDIA PCI Express interface card (Figure 4) comes with a standard (long) bracket as well as a shorter low profile bracket that conforms to the PCI Express low profile form factor. The specifications for the interface card are:

- Form factor: 6.6 inches × 4.376 inches
- Power draw: 10 W (maximum)
- Cooling: Passive heat sink (no fan)
- Bus: PCI Express ×16

An optional PCI Express ×8 host interface card can be purchased separately.

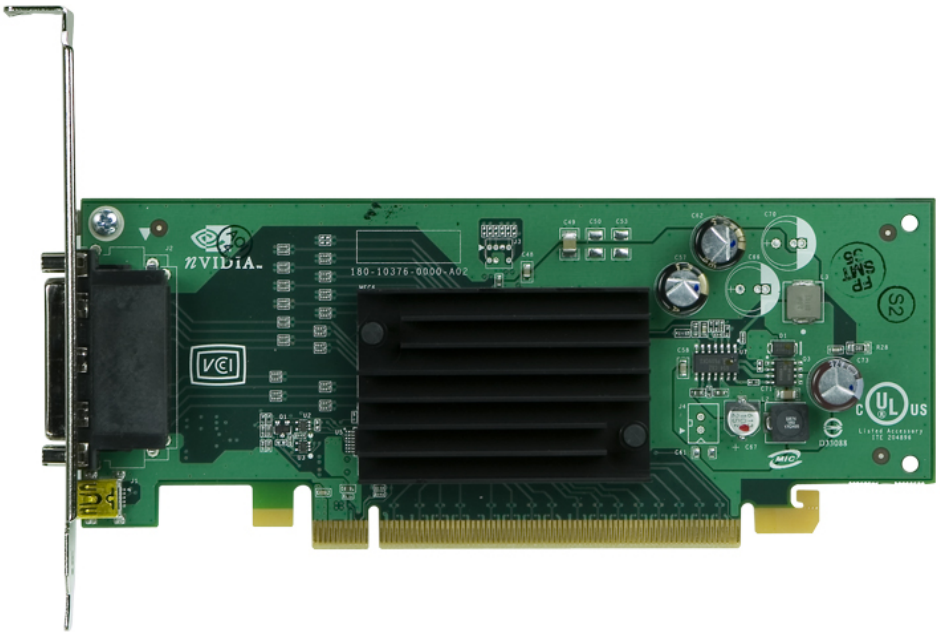

Figure 4. PCI Express x16 Host Adapter Card

PCI Express Cable

The Tesla D870 includes two PCI Express cables. These cables are 2 meters in length and connect the Tesla D870 to the host system using the host adapter card.

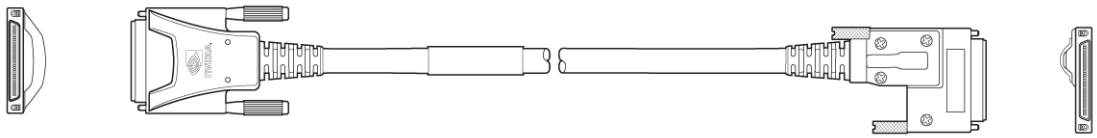

Figure 5. PCI Express Cable (2 Meter Long)

Environmental Specifications Summary

The Tesla D870 system has passed thermal and shock vibration qualification testing and is recommended to operate under the conditions listed in Table 3.

Table 3. Environmental Specifications and Conditions

Specifications	Conditions
Operating temperature	5 °C to 35 °C
Operating humidity	10 to 80 % RH, non-condensing
Operating Altitude	5000 feet mean sea level (MSL)
Operating Shock	Half sine 40g, 2ms duration, 3 axis
Operating Vibration	Sinusoidal 0.25g, 10 to 500 Hz, 3 axis. Random 1.0 Grms, 10 to 500 Hz
Acoustics	40 dBa at 1 meter in front of system
Non-operating temperature	0 °C to 65 °C

Support Information

Languages

Table 4. Languages Supported

	Windows XP	Linux
English (US)	X	X
English (UK)	X	
Arabic	X	
Chinese, Simplified	X	
Chinese, Traditional	X	
Danish	X	
Dutch	X	
Finnish	X	
French	X	
French (Canada)	X	
German	X	
Italian	X	
Japanese	X	
Korean	X	
Norwegian	X	
Portuguese (Brazil)	X	
Russian	X	
Spanish	X	
Spanish (Latin America)	X	
Swedish	X	
Thai	X	

Note: NVIDIA's CUDA™ software is only supported in English (U.S.)

Certificates and Agencies

Certifications

There are no certifications planned at this time.

Agencies

- Australia Communication Authorities (C-Tick)
- Bureau of Standards, Metrology, and Inspection (BSMI)
- Conformité Européenne (CE)
- Federal Communications Commission (FCC)
- Interference-Causing Equipment Standard (ICES)
- Ministry of Information and Communication (MIC)
- Underwriters Laboratories (UL)
- Voluntary Control Council for Interference (VCCI)

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