㈜넥스코시스템

AI Deep Learning System

DNG-1420A

DNT-1420P

Overview

넥스코시스템의 AI Deep Learning System DNG-1420A / DNT-1420P 시스템은 1U Rack 타입 시스템으로 Dual Intel Xeon Scalable Family 시리즈 CPU를 지원하며 최대 1.5TB의 시스템메모리지원과 2.5″ DISKE를 지원하여 최소의 공간에 최대GPU 활용이 가능한 사용가능한 시스템 입니다.

AI Deep Learning에 필요한 NVIDIA GPU를 1~4EA까지 장착이 가능한 시스템 입니다.

DNG-1420A / DNT-1420P

- Supports up to 4 GPUs in 1U
- Support Active/Passive GPUs
- GPU health monitoring with Fan speed control

1. Dual socket P (LGA 3647) supports Intel® Xeon® Scalable Processors, 3 UPI up to 10.4GT/s
2. Up to 1.5TB ECC 3DS LRDIMM, up to DDR4-2666MHz; 12 DIMM slots
3. 4 PCI-E 3.0 x16 (FHFL) slots, 2 PCI-E 3.0 x16 (LP) slots
4. 2 Hot-swap 2.5" SAS/SATA drive bays, 2 Internal 2.5" drive bays
5. 2x 10GBase-T LAN ports via Intel X540
6. 9 Heavy duty 4cm counter-rotating fans with air shroud & optimal fan speed control
7. 2000W Redundant Power Supplies Titanium Level (96%)

NVIDIA GPUs
‣ NVIDIA DIGITS software: Interactive Deep Learning GPU Training System
‣ Pre-installed Ubuntu 14.04.2
‣ Pre-installed deep learning frameworks – Caffe, Torch, Theano, and BIDMach
‣ NVIDIA CUDA Deep Learning Neural Network library (cuDNN) v2
‣ NVIDIA CUDA Toolkit 8.0

1U / 4GPU SYSTEM / 2 CPU

1. Processors

supports dual Intel Xeon Processor Scalable Family series processors in Socket P (LGA 3647) supported, CPU TDP support 205W, 3 UPI up to 10.4 GT/s to the motherboard description pages on our web site for a complete listing of supported processors

2. Memory

supports up to 1.5TB of DDR4-2666 ECC 3DS LRDIMM or ECC RDIMM in 12 DIMM slots. Populating these slots with two DIMMs at a time will result in interleaved memory, which will improve performance.

3. Serial ATA

The motherboard has six SATA 3.0 connections from Intel PCH (SATA1-6) with two SATA ports used for SuperDOMs (Device-on-Module) with power supply built in. RAID 0, 1, 5 and 10 are supported by Intel PCH.2 Hot-swap 2.5" SAS/SATA drive bays, 2 Internal 2.5" drive bays
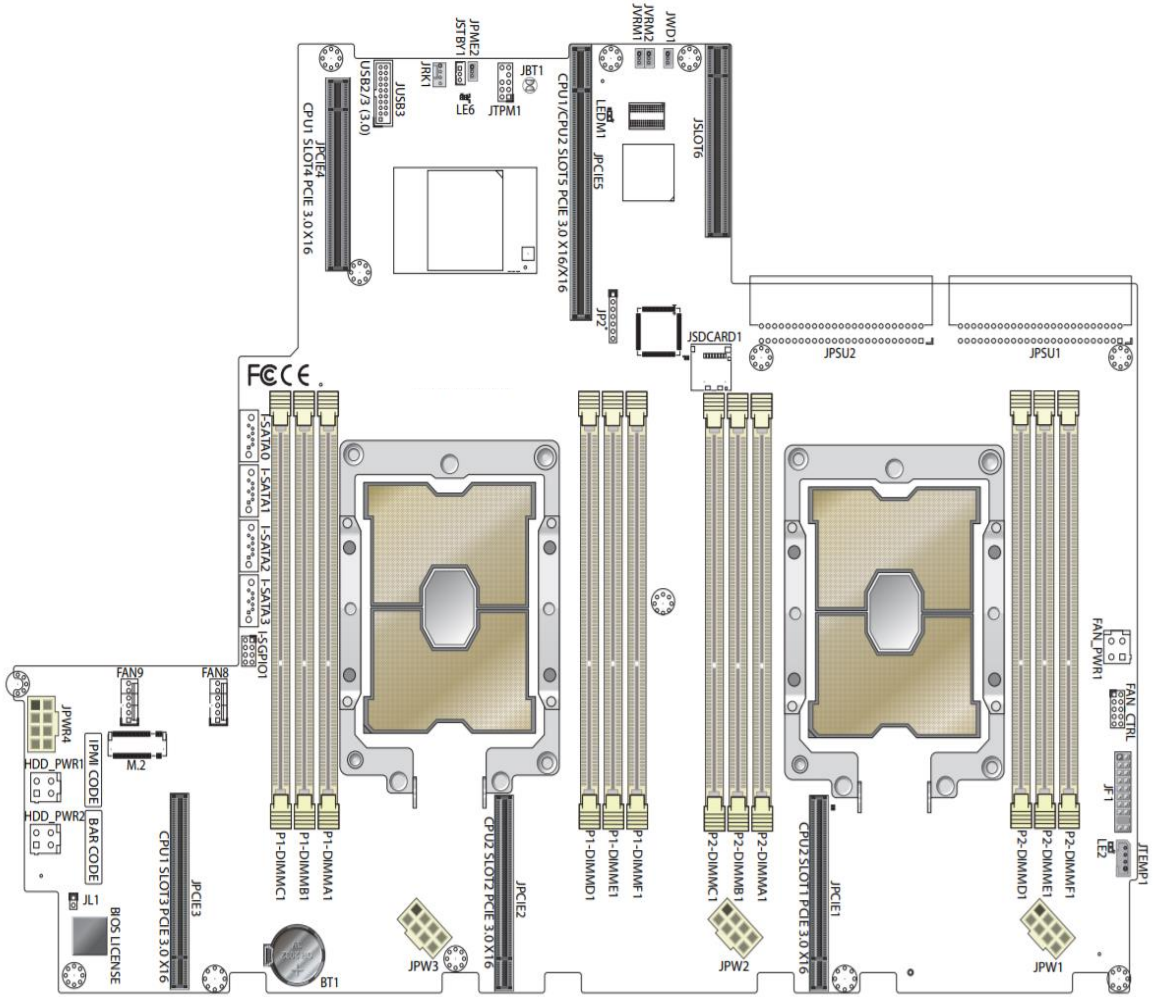
4. PCI Expansion Slots

The system offers four PCI-E 3.0 x16 slots that support optional graphics processing units (GPUs)/ NVIDIA GPU cards, plus two low profile PCI-E 3.0 x8 slots.

The system supports graphics processing units NVIDIA GPUs.

DNG-1420A / DNT-1420P System Block Diagram
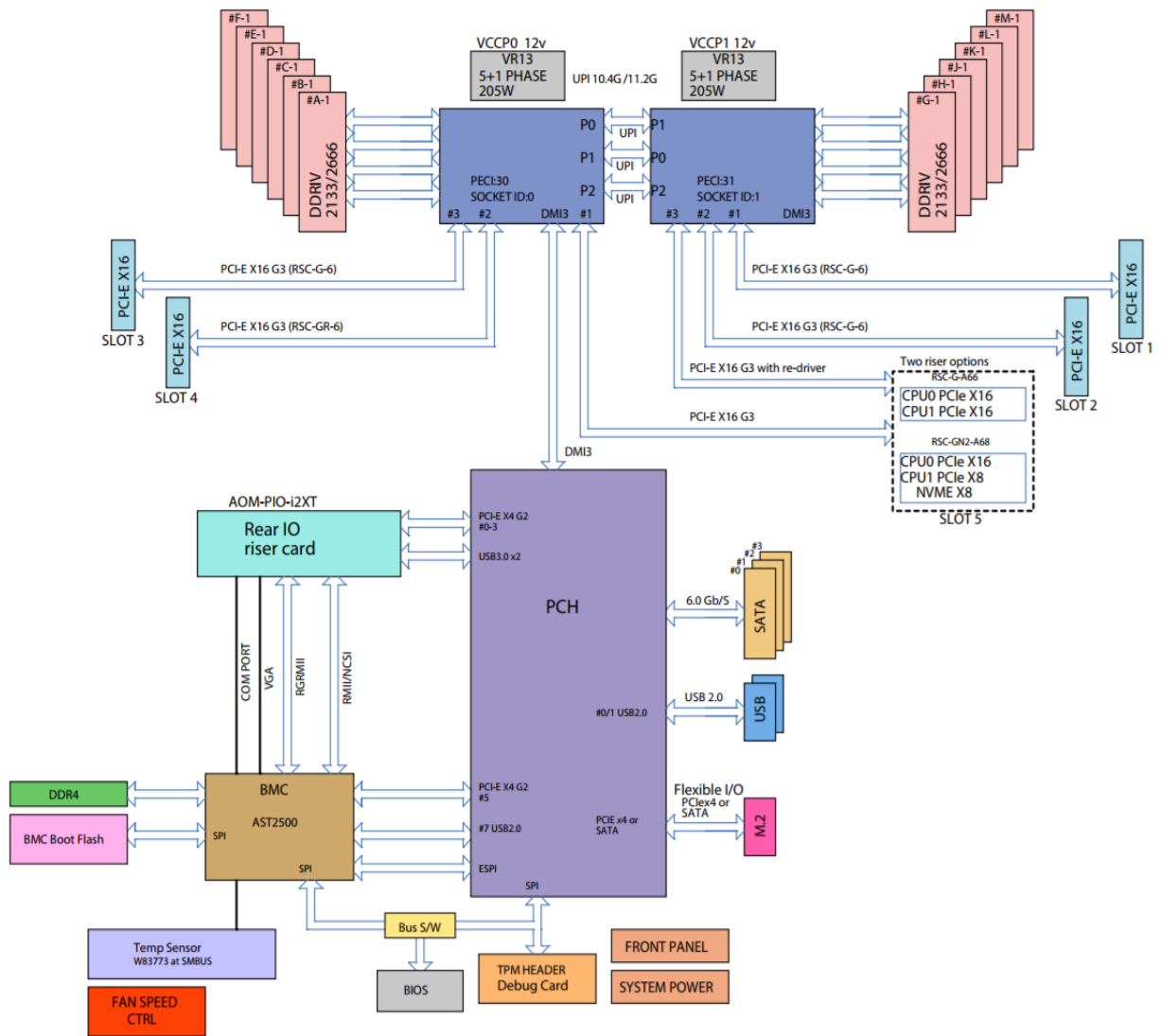
Motherboard Details

5. IPMI

Intelligent Platform Management Interface (IPMI) 2.0 is a hardware-level interface specification that provides remote access, monitoring and administration for Supermicro servers. IPMI enables administrators to view a server hardware status remotely, receive an alarm automatically if a failure occurs, and power cycle a system that is non-responsive.

6. System Power

The chassis includes a 2000W redundant power supply consisting of two power modules. Each has an auto-switching capability, which enables it to automatically sense and operate with a 100V to 240V input voltage.

7. Storage Drives

The chassis has two externally accessible hot-swap 2.5" drive bays and space for two internal fixed 2.5" drives.

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. (Both procedures may be done without removing power from the system.)
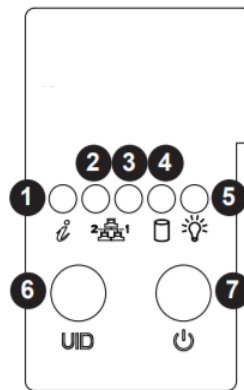
8. Cooling System

A row of 4-cm counter-rotating fans provide the cooling for the system Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counterrotating action generates exceptional airflow and is effective in dampening vibration levels. The chassis provides two additional open fan housings, where an additional system fan may be

added for optimal cooling. It is very important that the chassis top cover is installed for the cooling air to circulate properly through the chassis and cool the components.

System Interface

Control Panel

The switches and LEDs located on the control panel are described below. See Chapter 4 for details on the control panel connections.

Figure 1-1. Control Panel View

Control Panel Features		
Item	**Feature**	**Description**
1	Information LED	See table on the following page.
2	NIC2 LED	Indicates network activity on the LAN2 port when flashing
3	NIC1 LED	Indicates network activity on the LAN1 port when flashing
4	HDD LED	Indicates activity on the hard drive when flashing
5	Power LED	Indicates power is being supplied to the system power supply units. This LED should normally be illuminated when the system is operating.
6	UID LED	The unit identification (UID) button turns on or off the blue light function of the Information LED and the blue LED on the rear of the chassis. These are used to locate the server in large racks and server banks.
7	Power Button	The main power button is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must also unplug system before servicing

1. Control Panel Buttons

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Power

The main power switch applies or removes primary power from the power supply to the server but maintains standby power. To perform most maintenance tasks, unplug the system to remove all power.

RESET

Reset

The reset button is used to reboot the system.

Power LDE

Indicates power is being supplied to the system power supply units.This LED is illuminated when the system is operating normally.

HDD

HDD

Indicates activity on the hard disk drive when flashing.

NIC2

Indicates network activity on GLAN2 when flashing.

NIC1

Indicates network activity on GLAN1 when flashing.

Information LED

Alerts operator to several states, as noted in the table below.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occured. (This may be caused by cable congestion.)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.

Power Fail

Indicates a power supply module has failed.

	LED Color	Blinking Pattern	Behavior for Device
Activity LED	Blue	Solid On	SAS/NVMe drive installed
	Blue	Blinking	I/O activity
Status LED	Red	Solid On	Failure of drive with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support
	Red	Blinking at 4 Hz	Identify drive with RSTe support

Input/Output Ports

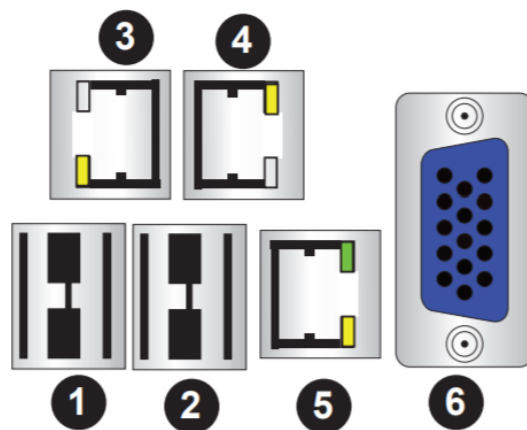The rear panel I/O ports are connected to the motherboard by means of the add-on module.

Figure 5-2. Rear Panel I/O Ports

1.	USB 3.0 Port
2.	USB 3.0 Port
3.	LAN 1
4.	LAN 2
5.	IPMI dedicated LAN
6.	VGA (blue)