CRZ Technology

Cosmos OpenSSD Platform

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Company Introduction

Open Platform

ARM9 | ARM11 | Cortex-A8 | Cortex-A9 | Cortex-A15

Cortex-M3

Mangoboard

Jasmine
Barefoot-Plus

Cosmos
Zynq-7000

OpenSSD

NVRAM-EVB
Zynq-7000

NVRAM

IoT Gateway I
Cortex-A9 Dual
WIFI/Bt/Zigbee/Ethernet

IoT Gateway II
Cortex-A9 Quad
WIFI/Bt/Zigbee/Ethernet/LTE
HDMI/CAM

Things
Controller
Sensor
Actuator

Internet of Things

Custom Products

Factory Automation, Medical Equipment, HMI, Control Systems

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OpenSSD Project

- Open-source SSD platform for research and education on the SSD technology since 2011
  - http://www.openssd-project.org
- Provides an "OpenSSD platform" for developing SSD firmware, controller hardware, and host software
- Contribution from Indilinx (later merged to OCZ), SKKU (Sungkyunkwan University), HYU (Hanyang University), etc.
- Hardware design and production from CRZ Technology

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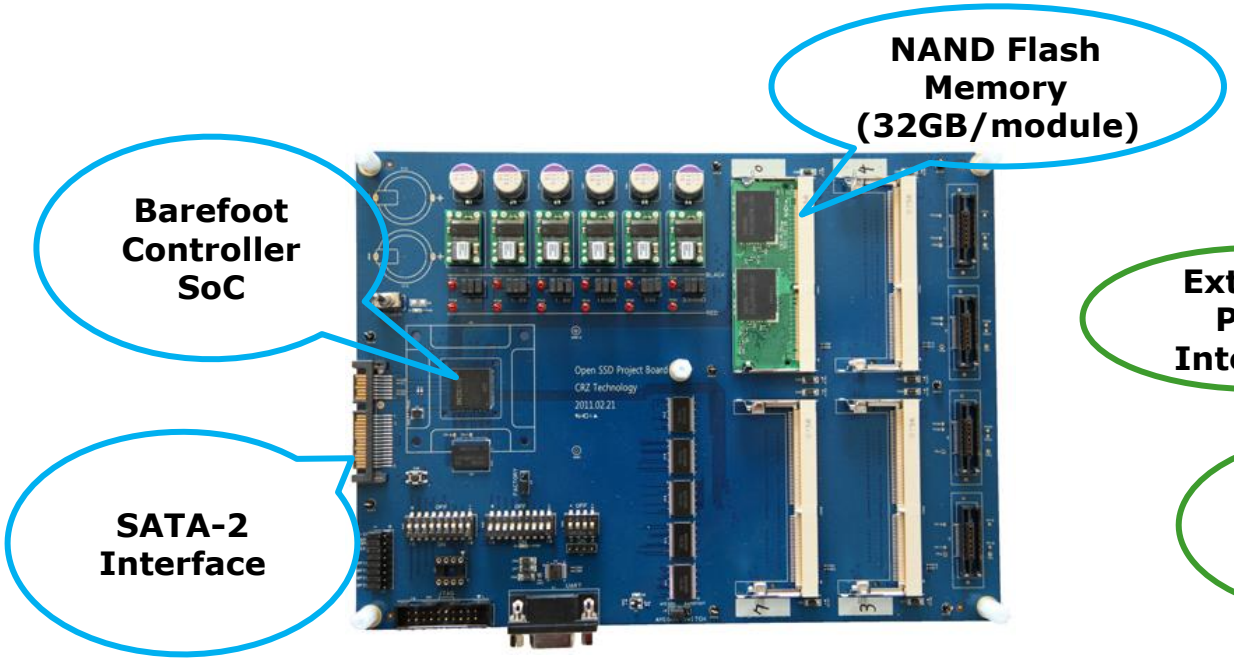
OpenSSD Project History

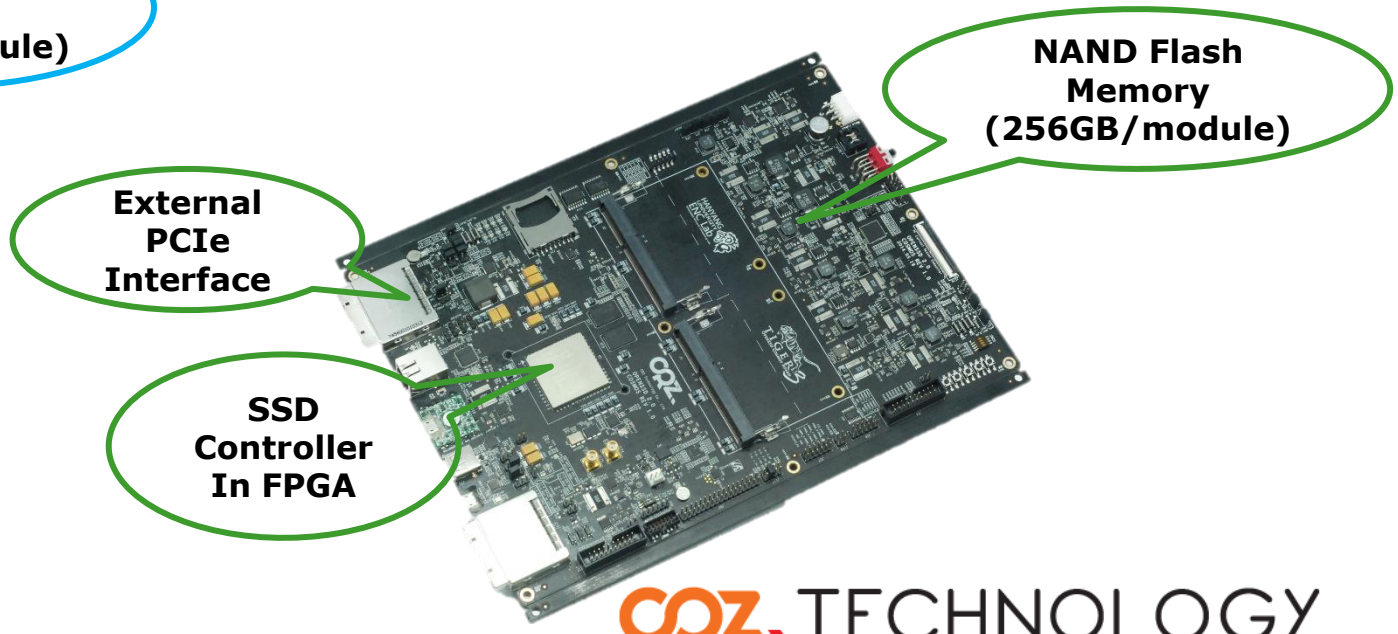
Jasmine OpenSSD (2011)

- Indilinx Barefoot-Plus SSD Controller
- Frimware from SKKU VLDB Lab
- SATA-II, 32GB x4 Flash Modules



Cosmos OpenSSD (2014)

- HYU Tiger3 SSD Controller (in Xilinx Zynq-7000 FPGA)
- Firmware : HYU ENC Lab, SKKU VLDB Lab
- PCIe Gen2 x8, 64/128/256GB x2 Flash Modules
- Auxiliary interface : GBE, USB, UART



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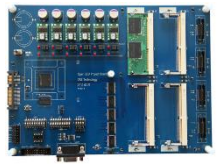
Comparison among the Platforms

	Jasmine OpenSSD	Cosmos Prototype (Tiger2)	Cosmos OpenSSD (Tiger3)
SSD Controller	Indilinx Barefoot (SoC)	HYU Tiger2 (FPGA)	HYU Tiger3 (FPGA)
Year	2011	2012	2014
Host Interface	SATA-2	PCIe Gen1.1 (AHCI Subset)	PCIe Gen2 (AHCI Subset)
Storage Capacity	128 GB	512 GB	512 GB
NAND Data Interface	Asynchronous	Asynchronous	Synchronous
DRAM Capacity	64 MB	512 MB	1 GB



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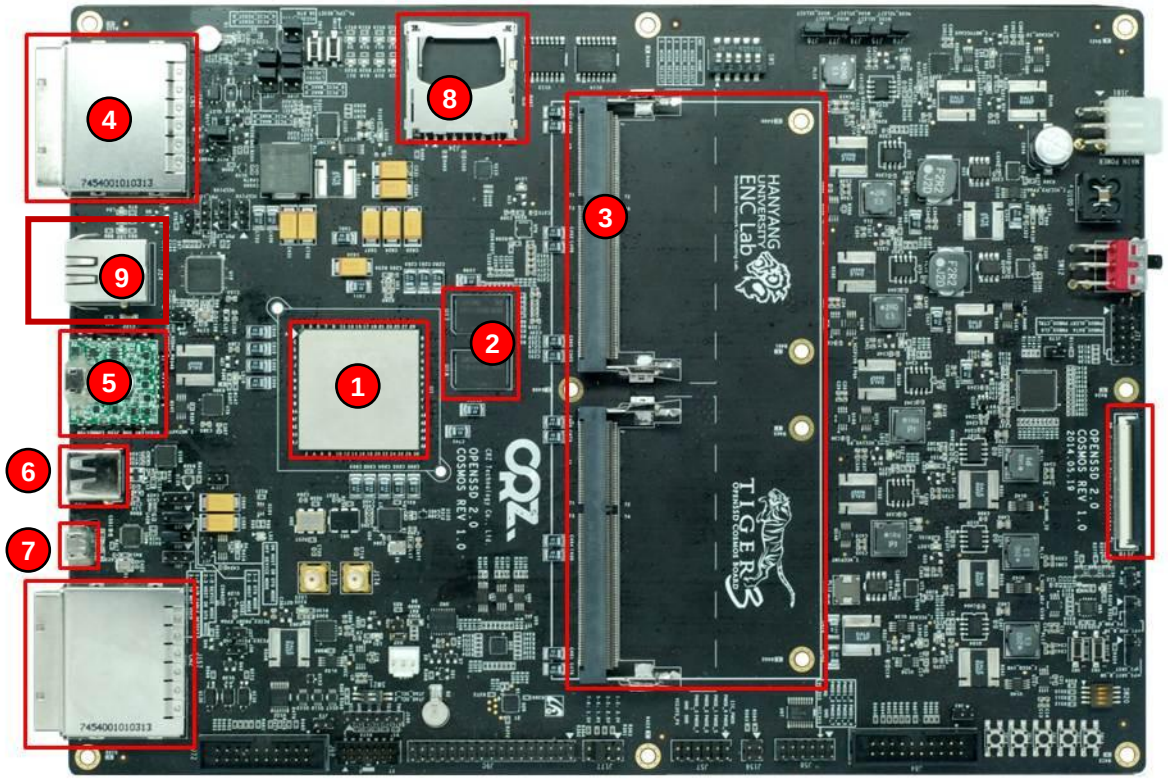
OpenSSD Project wiki

http://www.openssd-project.org

OCZ TECHNOLOGY

Cosmos OpenSSD Platform Board



No.	Description
1	Xilinx Zynq-7000 (HYU Tiger3 Controller)
2	DDR3 SDRAM 1GBytes
3	NAND Option Module Connectors (2 SODIMM)
4	External PCIe Gen2 x8 1port
5	USB JTAG (Digilent)
6	USB-UART
7	USB 2.0 Host/Device
8	SD Card
9	Gigabit Ethernet Connector

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Open Platform…

- Sources will be available soon at the OpenSSD webpage
- Sources could be updated by other users except us (welcome all the time!)
- And more activities will be posted to the webpage as well

Future Topics…

- Flash memory technology
- New ideas in SSD technology
- Participation from industries and research groups
- Direction of evolution of OpenSSD?

Thank you

For further information,
visit http://www.openssd-project.org

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