Press Release

SolidRun Unveils SolidNET DPUs – The First Software-Defined DPU for Cloud, Edge and Enterprise Data Centers

SolidNET Software-Defined DPU cards are built to take advantage of available open-stack software and open standards

TEL AVIV, September XX, 2022 – SolidRun, a leading developer and manufacturer of high-performance System on Module (SOM) solutions, Single Board Computers (SBC) and network edge solutions, today announced SolidNET, a line of Arm®-based software-defined data processing unit (DPU) PCIe half-height-half-length (HHHL) cards which are based on off-the-shelf 16-core NXP LX2162A SoCs. Offering customers full flexibility to implement SDN, networking security, and acceleration functions based on virtIO, DPDK and NVMe standards, these powerful data center solutions are packed with all the key elements required for next-generation cloud-scale computing.

"With the increasing demand for performance in data centers, securing the infrastructure and scaling performance becomes a major challenge," said Mordi Blaunstein, VP marketing and sales at SolidRun. "SolidRun's DPU makes it possible to isolate the servers from the infrastructure on the node level, abstracting the infrastructure based on open standards, thus making it higher performance for about the same cost as a standard smart NIC."

SolidNET Software-Defined DPUs Fast-Track Next-Gen Cloud Scale Computing

Enabling 100 percent bare-metal and virtualized/containerized Infrastructure as a Service (IaaS), these robust and flexible DPUs fully off-load the host server CPU's hypervisor, handing network and NVMe functions to the DPU, creating physical isolation between the server compute resources and infrastructure. This provides vast service offload capabilities, and is perfect for network management, storage, security abstractions to hide advanced topologies from applications, SDN overlays, mesh, NVMeoF, network HSM, virtual private cloud (VPC) and more. With a dedicated DPU, application performance is greatly improved, making SolidNET DPUs an ideal solution for virtualized and bare-metal

hosting infrastructure services. Furthermore, with a SolidNET DPU, these functions no longer compete with application workloads for server cores, memory or storage resources, and benefit from improved server security with independent out-of-band management capabilities, secure boot, and root of trust support.

SolidNET Software-Defined DPUs offer flexible integration for a variety of application-level offloading and acceleration functions, like L4 Firewall, DDOS, Bot Detection, API Gateway, etc. This is extremely beneficial when running workloads at the cloud edge to boost efficiency by maximizing the utilization of the host CPU for running the required application/service algorithms, while the DPU executes the basic function per application instructions. For example, DDoS attack filtering can be executed by the DPU per filtering tables built and maintained by the application running on the host server CPU.

SolidNET DPUs are a multi-vendor solution that utilizes off-the-shelf Arm-based SoCs from the industry's leading chipmakers. This unlocks a wide variety of potential hardware solutions and vendors, and allows SolidRun to support different features and benefits, while keeping hardware costs low. Since complex network services are offloaded to the DPU, customers can further reduce data center costs with the use of more power efficient data center network infrastructure hardware.

"DPUs provide an effective way to drive more efficient resource utilization and reduce operating costs throughout the data center," said Imran Yusuf, director of hardware ecosystem, Infrastructure Line of Business, Arm. "Offloading applications that historically ran on server CPUs to high performance and efficient Arm-based CPUs is benefiting a wide range of applications from AI/ML, databases, storage and security tasks, and microservices. SolidRun's Software-Defined DPUs will provide a streamlined user experience taking advantage of the robust Arm software ecosystem."

In early testing, customers have found tremendous success using SolidNET DPUs for software-defined networking functions and application-level acceleration - , effectively allowing the DPU to operate as a dedicated server within a server. This offers massive benefits for enterprise security acceleration, CDN uPOP acceleration and infrastructure cloud services. With an abundant software ecosystem for the Arm platform, SolidNET DPUs can be fully customized and optimized for the most stringent applications, today and in the future – all while sustaining the highest possible performance.

The general-purpose 16-core Arm-based NXP Layerscape LX2162A CPUs powering SolidNET DPUs offer significant computing capabilities, while the PCIe card form factor makes it ideal for upgrading existing cloud, edge, and enterprise data centers servers for SDN applications. Operating separately from the host server, these DPU cards boot to general-purpose operating systems like Linux and offer independent out-of-band management capability. This offers strict security isolation of the hosting system from the cloud network infrastructure (VPC, encryption, storage services, etc.). Other Arm-based SoC options will be announced at a later date.

SolidNET products are compatible with Linux-based SDN software applications, including DPDK, which provides data plane libraries and network interface controller polling-mode drivers for offloading many networking services and functions. For example, TCP segmentation from the operating system kernel to processes running in the DPU user space.

For more information about the new line of SolidNET network hardware solutions from SolidRun, please visit:
https://www.solid-run.com/arm-servers-networking-platforms/solidnet-dpu/

For more information about SolidRun, please visit www.solid-run.com. SolidRun is a gold member of the NXP Partner Program. Learn more.

About SolidRun

SolidRun is a global leading developer of embedded systems and network solutions, focused on a wide range of energy-efficient, powerful, and flexible products. Our innovative compact embedded solutions are based on Arm and x86 architecture and offer a variety of platforms including SOMs (System-on-Module), SBCs (Single Board Computer) and industrial mini-PCs.

SolidRun offers a one-stop-shop for developers and OEMs, providing a complete service from hardware customization to software development , product branding and enclosure design. With a mission to simplify application development while overcoming deployment challenges, SolidRun proudly provides customers faster time-to-market and lower costs.

SolidNET DPU Specifications:

Specifications	
Form Factor	Half Length Half Height (HHHL) PCIe Add-in card
Chip	NXP Layerscape LX2162A
Cores	16 Cores of Arm® Cortex®- A72 Optional 8 and 12 core configurations
Memory	8GB and 32GB options Onboard DDR4 + ECC
Interface Standard	PCIe Gen 3.0 X8 Gold Fingers
Network	2x 25GbE 1x 1GbE (Management)
Physical/Virtual Functions	2 PF with up to 64 VF per PF Default configuration: ● PF0 virtIO Network ● PF1 NVMe storage device
Security	Acceleration: TRNG, AES, SHA-256, etc.
power consumption	Max 40W ; TDP <25W