

OpenNet – Product brief

Patent pending

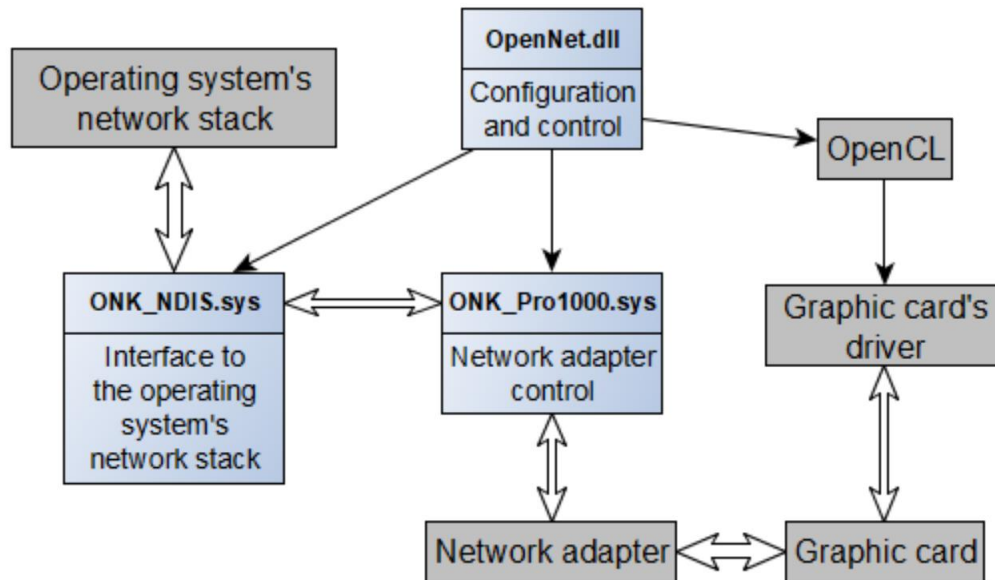
The **OpenNet** product allows you to directly connect one or more network cards to a graphics processor to efficiently process the received network packets using all the flexibility of the **OpenCL™** language.

The data passes directly from the network card to the fast memory of the graphics card without going through the main memory of the computer and especially without having to be manipulated by the main processor.

The graphics processor then processes the very large number of packets received in parallel, modifies them if necessary and redirects them, or not, to a network card of the **OpenNet** system or to the network stack of the operating system.

Software architecture

The following diagram shows the three main components of **OpenNet**. The OpenNet.dll library allows the user to configure and control network cards and graphics cards bundled into an **OpenNet** system.



A special driver controls the network adapters. This driver is not recognized as a network card driver by the operating system.

The interface between the **OpenNet** system and the operating system's network stack is provided by a specially designed device driver.

A system can hold up to 31 network cards and multiple graphics cards. A single graphics card can process data from one or more network cards.

Performance

A modest system with an **Intel® PRO / 1000 EB Dual Port Server Adapter (82576)** and only one **Radeon™ Pro WX 5100** graphics card, can handle, at this time, more than 1.6 million packets per second. It also allows to process and retransmit using the same card, or another one, more than 750,000 packets per second.

Applications

- Fully analyze network packets
 - Detect threats or intrusions
 - Search for data in the contents of packets
- Select packets to submit to an analysis or treatment
- Modify packets
 - Encryption / Decryption
 - Address Translation
 - ...
- Test OpenCL processing code to be used on a FPGA
- Offload tasks normally performed by the main processor
 - Encryption / Decryption
 - Compression / Decompression
 - Receive or transmit TCP
 - Receive or transmit images or video
 - ...
- Connect the network directly with artificial intelligence algorithms running on graphics processors
- ...

Technical information

Supported graphic cards	Radeon™ Pro WX 5100, Radeon™ Pro WX 7100 Radeon™ Pro WX 8200, Radeon™ Pro WX 9100 Other card supporting DirectGMA
Supported network adapters	Intel® PRO/1000 EB Dual Port Server Adapter (82576) Other network card supported on demand
Supported operating systems	Windows® 10 64 bit

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