Press Release

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Fast & furious: Fanto*Vision 20* ultra-compact computer for high-speed and high-resolution image processing

Embedded computer from Gidel allows up to 20 Gb/s image acquisition and image processing by a novel combination of NVIDIA's Jetson Xavier NX™ SOM with a powerful Intel Arria 10™ FPGA.

Or Akiva, Israel/Santa Clara, CA – Gidel, a technology leader in high-performance FPGA systems development, introduces a small and robust embedded computer tailored for high-throughput image acquisition and image processing. Fanto*Vision 20* allows image processing, compression, and recording of video streams with up to 20 Gb/s in real-time, all packed in an ultra-compact form factor.

High-speed image acquisition and real-time processing

With 2 x 10GigE and Camera Link 80-bit (DECA) connections, Fanto*Vision 20* provides high-bandwidth camera interfaces to capture and process high-resolution images at fast frame rates in real-time.

Fanto*Vision 20*'s distinct architecture combines an Nvidia Jetson Xavier NX embedded computer with an Intel Arria 10 FPGA. This unique combination features out-of-the-box high-end frame grabbing with real-time AI and image processing. Algorithms are easily programmed using C/C++ CUDA and NVIDIA's extensive AI, image processing and compression libraries. The FPGA offers powerful pre-processing and high-end compression capabilities. Using multi Fanto*Vision 20*s and Gidel's open-FPGA InfiniVision acquisition flow, a 1000+ cameras streams can be captured and synchronized simultaneously.

With a 134 x 90 x 60 mm^3 form factor, Fanto*Vision 20* is an ultra-compact computer that can be easily integrated in systems with limited space. Its robust hardware has been designed to operate under harsh industrial conditions. Passive and active cooling options are available.

Key Specifications of Fanto*Vision 20*

Camera interfaces	• 2 x 10GigE Vision • Camera Link (up to DECA)
NVIDIA SOC (AI, image processing, compression)	NVIDIA Jetson Xavier NX (Jetson Nano/TX2 NX options)
GPU	384-core Volta™ GPU with 48 Tensor Cores
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6MB L2 + 4MB L3
FPGA processing (frame grabbing, compression, pre-processing)	Intel Arria 10 (160, 270 or 660)
Software interface	• FPGA: Gidel ProcVision Suite • CPU/GPU: NVIDIA JetPack SDK
SOC memory	• up to 2 TB SSD • 16 GB eMMC 5.1 • 8 GB @ 51.2 GB/s
Host interfaces	1GigE, USB 3.1/2.0, HDMI, UART, Recovery, Restart
Dimensions	134 x 90 x 60 mm^3

New possibilities for industrial, outdoor, and mobile applications

With its unique processing capabilities and small form factor, Fanto*Vision 20* opens new possibilities for developers of vision systems with high-bandwidth real-time AI and image processing requirements. Potential applications include high-speed inspection, ITS (Intelligent Transportation Systems), broadcast, medical devices and embarked applications such as agriculture, aerial mapping, etc.

With its high-speed interfaces and real-time processing, Fanto*Vision 20* enables **inspection** or **sorting tasks** at high resolution and high frame rate. Using a 10Gigabit Ethernet switch, multiple GigE cameras can be networked for 360° inspection or 3D scanning. Machine learning and inference processing can be implemented using Nvidia's AI libraries. Thanks to the small form factor and compression capabilities, portable recording systems can even be designed for offline measurements.

For surveillance or traffic monitoring applications, Fanto*Vision 20*'s compression, local recording and streaming capabilities combined with its compact and rugged hardware that can easily be installed on gantries or traffic lights, offers a powerful yet cost-effective solution. The supported interfaces allow for long cable lengths between cameras and the Fanto*Vision* computer.

The small form factor, light weight, and low power consumption of the Fanto*Vision20* also makes it the computer of choice for any **system embarked on a vehicle**. For example, it is perfectly suited for vehicles capturing 360° views of their surroundings at high-resolution for mapping purposes or for aerial imaging. Another potential field of outdoors application is **agriculture**, such as for automatic weed extraction, targeted fertilization, or harvesting by vision guided robots.

With its high-bandwidth interfaces, powerful image processing capabilities, compact size, and modular options, Fanto*Vision20* is the ultimate computer solution for high-speed and high-resolution machine vision applications requiring real-time processing, compression, or recording at optimized overall system costs.

More information:
https://gidel.com/imaging-and-vision/edge-computers/

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About Gidel (for Vision):
For nearly three decades, Gidel has been a technology leader in FPGA-based imaging and vision solutions. When high data rate applications require real-time processing, low latency, or high customization options, customers partner with

Gidel. Our customers benefit from Gidel's world class FPGA platforms, development tools, expertise in algorithms, and design services. Gidel's easy-to-use system development tools significantly reduce customers' time to market and production of FPGA-based acceleration systems.

Typical applications are edge computing, mission-critical systems, embedded vision, and data centers. Besides custom solutions, Gidel also features a broad range of high-bandwidth frame grabbers for 10, 40, and 100 Gigabit Ethernet, CoaXPress and Camera Link as well as diverse off-the-shelf PCIe FPGA boards and FPGA modules.