NVIDIA

# ~A Leader in AI Computing~

**Born in Silicon Valley in 1993, NVIDIA is the inventor of the GPU and a world leader in visual computing. Along with the NVIDIA solutions that continue to elevate its reputation as an 'AI computing company', we also offer a wide variety of solutions including autonomous driving, the latest vehicle technology from NVIDIA and NEXTY Electronics.**

## Who is NVIDIA?

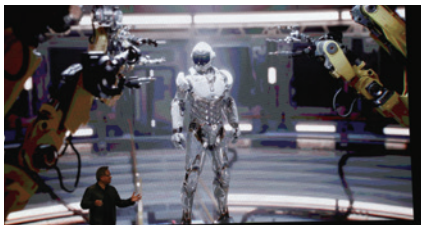
Since NVIDIA's establishment in 1993, the GPUs conceived by the company have driven growth in the PC gaming market, redefined modern computer graphics, and revolutionized parallel computing. In more recent years, GPU-based deep learning has become a catalyst for modern AI and is paving the way to a new age of computing. These GPUs are being used as the backbone of a diverse array of computers, robotics, and autonomous vehicles that are aware of—and understand—the world around them. NVIDIA is no longer just a semiconductor supplier. Today, NVIDIA's reputation as an 'AI computing company' is making another leap forward.

NVIDIA

Established: 1993
Founder: Jensen Huang
Address: Santa Clara, California, U.S.
Number of employees: Approximately 12,000
Sales volume: FY 2018, USD 9.71 billion (over 1 trillion yen)

"Endeavor" is Nvidia's new office building located in Santa Clara, the heart of Silicon Valley. Please stop by if you are ever in Silicon Valley.

Jensen Huang, founder and CEO, is NVIDIA's iconic leader. He was selected as 'Best-Performing CEO in the World' in 2017.



Released in August 2018, the GeForce RTX realized real-time ray tracing with the newest Turing architecture, a long-time dream for many.

## Who is NEXTY Electronics?

Tomen Electronics and Toyota Tsusho Electronics merged in 2017 to become NEXTY Electronics, Japan's largest electronics company. NEXTY aims to be an Innovation Partner that provides a one-stop solution for customer innovation by strengthening our combination of 'Development Capabilities × Technical Capabilities × Manufacturing Capabilities' to offer not merely stand-alone products, but rather fully-comprehensive modules and systems.

NEXTY Electronics

Established: April 1, 2017
President: Atsushi Aoki
Address: Tokyo, Nagoya
Number of employees: approx, 2,000 (domestic and foreign engineers, 800)
Sales volume: approx. 500 billion yen

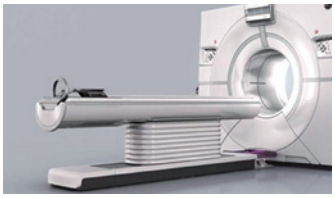
## NVIDIA and NEXTY Electronics: A Long History of Working Closely Together

Tomen Electronics, the predecessor of NEXTY Electronics, has been an official supplier for NVIDIA since the company launched in 2000, and has worked closely with the company in several fields. Rooted in GPUs for computers and arcade games, we have promoted NVIDIA's cutting-edge technologies for amusement markets and autonomous driving. In more recent years, these GPUs have also been mainly targeting autonomous driving and other mobility markets as a deep learning platform. Through our close partnership with NVIDIA, we are dedicated to continue providing the best solutions and support to our customers.

NVIDIA NEXTY Electronics

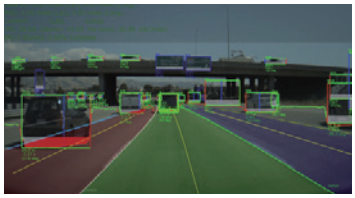
### Typical examples of NVIDIA's focus markets

Gaming



Professional visualization

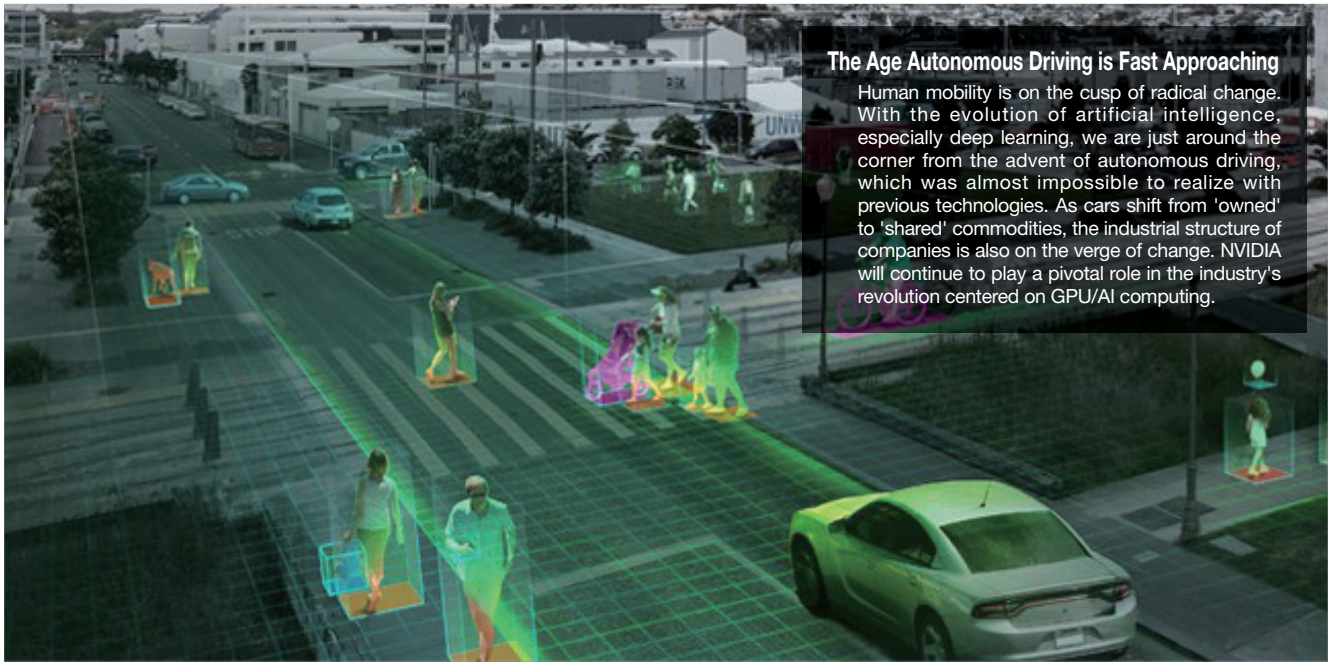
Data center



Autonomous


Vehicle Industrial

# Autonomous Driving Strategy: End-to-End System Solutions



**The Age Autonomous Driving is Fast Approaching**

Human mobility is on the cusp of radical change. With the evolution of artificial intelligence, especially deep learning, we are just around the corner from the advent of autonomous driving, which was almost impossible to realize with previous technologies. As cars shift from 'owned' to 'shared' commodities, the industrial structure of companies is also on the verge of change. NVIDIA will continue to play a pivotal role in the industry's revolution centered on GPU/AI computing.

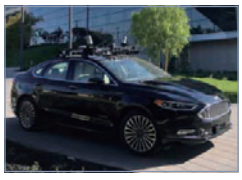
## NVIDIAs Autonomous Driving Platform, "DRIVE"

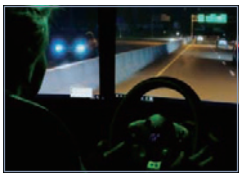
NVIDIA offers a SoC for AI at the edge that bundles together a CPU, GUP, AI Accelerator etc. that utilize cutting-edge processes. It also offers an autonomous driving software stack for autonomous driving intended for levels L2 to L5, including everything from the OS to the middleware and applications, which are compatible with all manner of sensor configurations.
As for deep learning development, NVIDIA also packages a deep learning server with various development tools and libraries. It has also developed an autonomous driving simulation environment and offers not only an End-to-End development environment, but also solutions for mass production.
Autonomous driving development with this cutting edge platform is already being used by automobile OEMs, suppliers and software development companies in Japan, and there are an increasing number of plans being announced that involve the use of NVIDIA's SoCs and software for mass production.

DRIVE AGX Development Kit

DRIVE AV

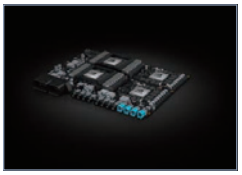
## NVIDIA End-to-End Platform












| Data collection | DGX based learning | CG based simulation | DRIVE AV and hardware | DGX based software validation |
|---|---|---|---|---|

Autonomous driving development requires several components, including the tools, software and hardware environment. NVIDIA provides end-to-end support for customer development efforts, which includes compiled data on driving scenarios, a deep learning server, the hardware and software required for mass production, and a simulation environment wherein all scenarios are generated by CG.

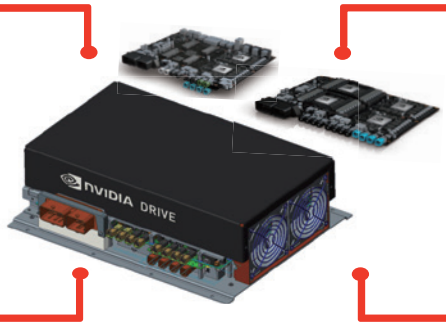
For inquiries, contact Marketing Dept. III, NVIDIA Group nvidia-info@nexty-ele.com TEL.03-5462-9628

# NEXTY Electronics delivers a Comprehensive Autonomous Driving Development Platform Solution

The "DRIVE AGX Xavier Development Kit" was announced by CEO Jensen Huang at GTC Japan in 2018. NEXSTY Electronics started its support services have been launched simultaneously to complement platform development, which take advantage of the support insight gained from the existing DRIVE platform.
For users currently using DRIVE PX 2, we urge you to consider upgrading to DRIVE AGX XAVIER to take advantage of its unmatched performance.

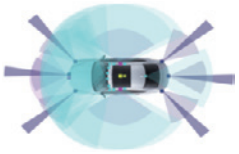
## Top Selling※ No.1 DRIVE Platform Support Center

DRIVE platform and on-site setup service




Develop a sensor data logger system that suits your needs

Test connectivity with a variety of sensors before purchasing



Consulting available for optimal AI development

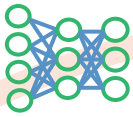
※ Based on NVIDIA research

## Autonomous Driving Development Packages on the DRIVE Platform

NEXTY Electronics has been a provider of the NVIDIA DRIVE PLATFORM for many years.
With a solid base of know-how gained from numerous development outsourcing projects, plus a wide range of partnerships that enable us to respond to virtually any customer need, we can provide solutions that realize an ideal environment for our customers to develop autonomous driving. NEXTY Electronics is committed to continuing to work closely with our customers engaged in autonomous driving development.

Autonomous driving development support & consulting

Outsourcing and support for AI development



Outsourcing of data collection and annotation work

Algorithm GPU optimization

NVIDIA CUDA

NVIDIA

DRIVE DEVELOPMENT PLATFORM

Camera module and drivers for DRIVE

Deep learning environment (DGX)

LIDAR Radar Other Sensors

Vehicle for autonomous driving verification tests and service review

Simulation environment

# DGX Series Deep Learning Servers

As a sales partner for the DGX Series, NEXTY Electronics has been working with GDEP Advance—a company awarded the "NVIDIA DGX Series Best Seller Award" from NVIDIA Japan last year—to sell kits designed for use with the autonomous driving development platform. These kits provide everything needed to realize deep learning, from learning environment to edge environment.

NEXTY Electronics

GDEP Advance

BEST Reseller Award NVIDIA DGX-1

## DGX Station

**NVIDIA® DGX-1™** is the world's first dedicated deep learning supercomputer with eight Tesla V100 accelerators incorporated on a motherboard that is compatible with NVIDIA's proprietary NVLink™. TESLA V100 is capable of 7.5 TFLOPS double-precision performance, 15 TFLOPS single-precision performance, and 120 TFLOPS performance when using Tensor Cores. The DGX-1™ is equipped with 8 Tesla V100s in a single-box supercomputer that boasts the extraordinary performance of 960 TFOPS at half-precision (FP16).

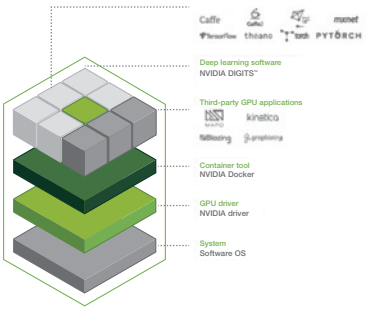
## DGX-1

## DGX-2

**NVIDIA® DGX-2** is equipped with 16 Tesla V100 32GB GPUs. 'NVSwitch', NVIDIA's revolutionary technology for extending NVLink, is also equipped to allow for interconnection of multiple GPUs. Doing this delivers 2 petaFLOPS of compute-performance by enabling the simultaneous interconnection of 16 GPUs over a high-speed 2.4 TB/s connection. The latest versions of NVIDIA CUDA®, TensorRT, NCCL, cuDNN, including deep learning and HPC software stack updates, as well as the new Isaac software development kit for robotics are also available. Through collaboration with leading cloud service providers, the most popular deep learning frameworks are continually optimized to ensure users are able to make the most of NVIDIA's GPU computing platform.

## A Software Stack Optimized for Advanced GPUs

An update is available for NVIDIA's deep learning and HPC software stack. The latest update includes NVIDIA CUDA®, TensorRT, NCCL, cuDNN as well as the new Isaac software development kit for robotics. Via collaboration with leading cloud service providers, the most popular deep learning frameworks are also continually being optimized to ensure that users can make the most of NVIDIA's GPU computing platform.

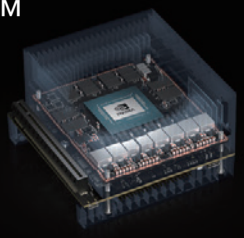



For inquiries, contact Marketing Dept. III, NVIDIA Group nvidia-info@nexty-ele.com TEL.03-5462-9628

# The sales launch of Jetson Xavier™ has finally arrived!

**NVIDIA® Jetson Xavier™ Developer Kit**

AI-equipped for autonomous machines



We are now accepting orders for the JETSON XAVIER's Developer Kit, the latest version of NVIDIA's Jetson platform! Be among the first to own an AI computer packed with the absolute latest in technology, and experience its breathtaking performance.

## Meet the new NVIDIA® Jetson Xavier™

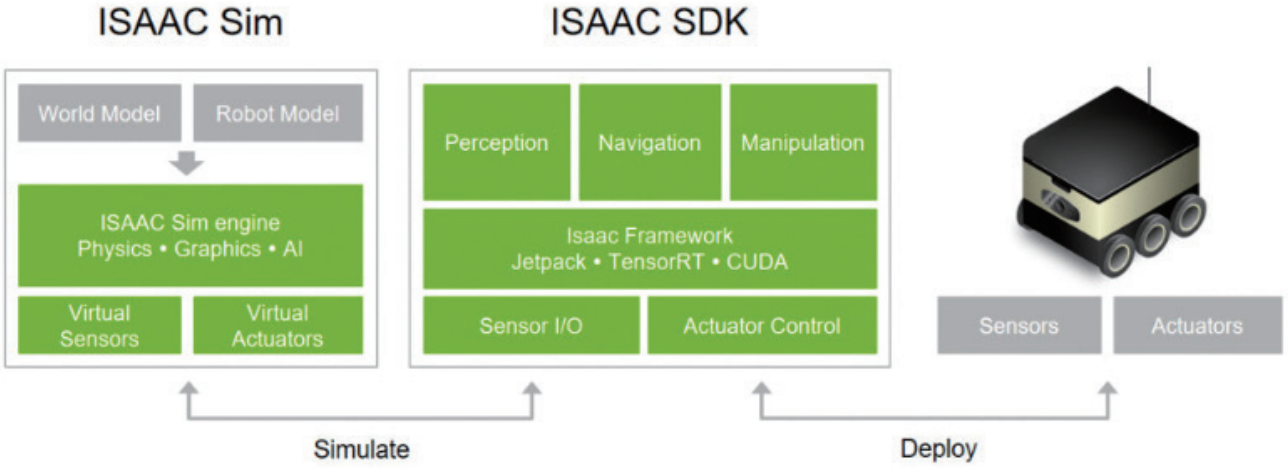
The latest model Jetson platform, NVIDIA® Jetson Xavier™ Developer Kit gives you all the performance of a GPU workstation in a sub-30W embedded module. Specifically built for autonomous machines, the NVIDIA Volta™ driven AI computer is able to achieve over 20 times the performance and 11 times the energy efficiency compared with the NVIDIA® Jetson™ TX2. This is ideal for handling modern AI workloads and building applications in industries that include manufacturing, distribution, retail, services, agriculture, smart cities, healthcare, and much more.

Jetson Xavier™ Development Kit and Module


Equipped on an autonomous robot

## ISAAC Sim Supports Simulation Efforts

By using the ISAAC SDK, users are able to train and test autonomous machines developed with Jetson in much more detailed and realistic scenarios.
This provides an AI platform that can adapt to future application upscaling, especially in applications that require AI adaptation at the edge, like autonomous driving robots, drones, and smart cameras.

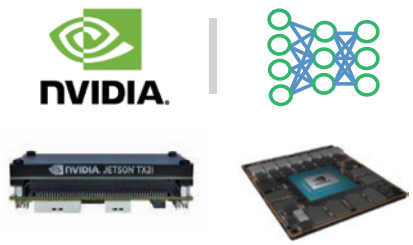


# Solutions for Autonomous Driving ECU Systems to Use in Industrial Mobility

## Applying Extensive Know-How Gained from Autonomous Driving to Industrial Mobility

The potential of autonomous driving goes well beyond just privately-owned cars. All society is facing challenges today with an aging society as well as ongoing labor shortages in primary and secondary industries; there is even debate on an industrial decline due to the shortage of labor.
Drawing on the strength of Toyota Tsusho Group's relationships in a variety of industrial fields, NEXTY Electronics has been building NVIDIA-based self-driving solutions for customers pursuing autonomous driving technologies, including manufacturers of farming and construction machinery. We now offer solutions of not simply individual components, but rather comprehensive solutions at a board/ECU level suitable for mass production.
By applying the know-how we have built up developing autonomous driving, combined with our ability to propose solutions like only the direct subsidiary of a comprehensive trading company can, we are committed to helping solve the challenges faced by society.


## NEXTY Electronics' ECU solutions




NVIDIA Jetson TX2i (Industrial Grade) are being used to apply AI-based recognition algorithms


Solutions that combine the development of ECUs that meet the demanding specifications of each industry with various sensors

We provide solutions for mass producing solutions for the automation of mobility in every field

For inquiries, contact Marketing Dept. III, NVIDIA Group nvidia-info@nexty-ele.com TEL.03-5462-9628

## Maxim Integrated

# Maxim's Approach to Fully Autonomous Driving Systems

**Maxim is working with NVIDIA to support the NVIDIA DRIVE AGX Pegasus platform, the first※ system in the auto industry to achieve Level-5 full autonomous driving, as well as NVIDIA DRIVE AGX Xavier for Level-4 driving.**

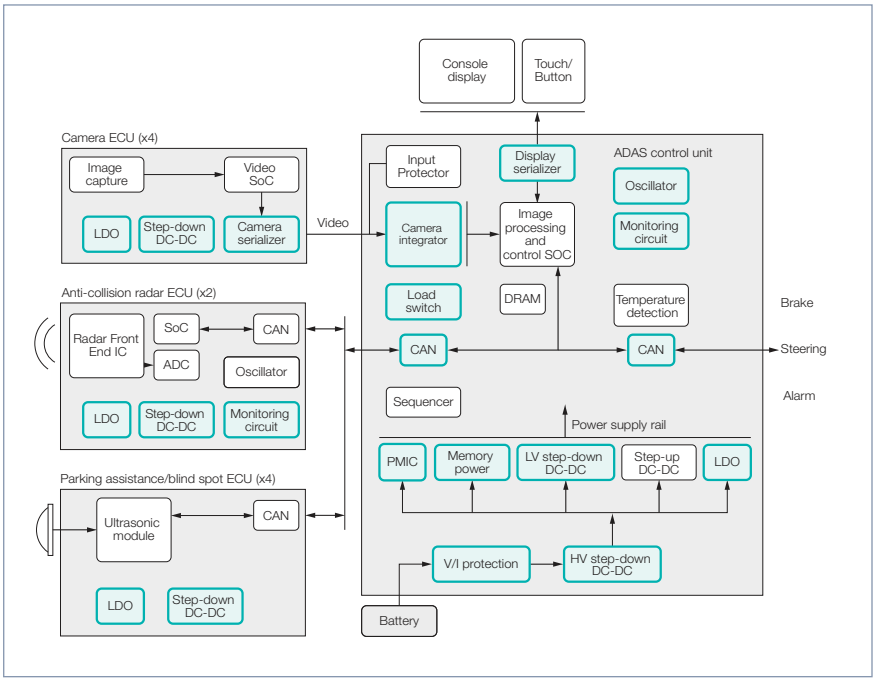
※Based on Maxim research

## Maxim and NVIDIA's Collaboration is Raising Expectations towards the Design of Advanced Driving Systems

Satisfying the functional safety requirements of NVIDIA's autonomous driving platform, which requires a highly-flexible framework, can be achieved by applying a combination of Maxim's ASIL (Automotive Safety Integrity Level) solution, high-performance analog integration including next-generation GMSL-SerDes technology, and a power system monitoring solution.
※GMSL: Gigabit Multimedia Serial Link

### Fast, Efficient Image Data Transfers

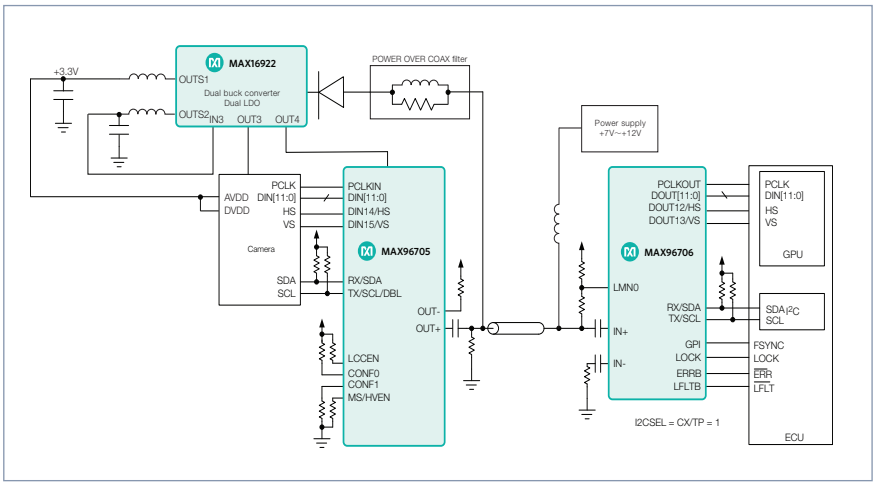
This is achieved by increasing the use of cameras installed across the entire motor vehicle.
One of the most important design challenges of an ADAS application (see figure, right) that includes cameras, is how to transfer image data from the camera to the processing unit, and then from the processing unit to each display, which all needs to happen as quickly and efficiently as possible.
※ADAS: Advanced Driver Assistance Systems are the technology for detecting and avoiding potential accidents before they occur.




Maxim products we handle

### Maxim's SerDes: Technology that provides serializer/deserializer functions.

Maxim's SerDes products (MAX967xx family) provide greater reliability and flexibility for uncompressed camera feed transmission systems. The SerDes chipset works by receiving uncompressed parallel video output from an image sensor, combining it with control input to serialize to a single high-speed output, sending that data via cable, and then converting the received signal back to the original parallel video output at the deserializer. Many systems are built to provide both power and high-speed bidirectional data over the same cable (see Fig., right).



Micron Technology, Inc.

# Introducing Micron's SSD Lineup

**SSDs are among the most popular products from among Micron's very diverse memory product lineup. Here, we would like to introduce a Micron storage products designed for use with NVIDIA GPUs.**

## Using SSDs with NVIDIA Products

Storage is used with NVIDIA's GPUs in a variety of scenarios, and you can expect to draw out maximum performance by replacing your HDD with an SSD.
The range of applications they are being used in continues to broaden, including autonomous driving, robot learning, gaming, image processing, and more.


Each product in Micron's SSD lineup is tailored to a different use, with a full lineup available that covers everything from products that emphasize enterprise performance, to industrial grade items with extended temperature ranges for outdoor use, making these SSDs useful in virtually any application.
We recommend using Micron's SSDs with NVIDIA GPUs.

## SSD Lineup

### Enterprise, Cloud SSD


**9200 Series** (3D NAND)
I/F : NVMe (PCIe)
Density : 1.6GB～11TB
F/F : U.2


**5200 Series** (3D NAND)
I/F : SATA
Density : 240GB～7.68TB
F/F : 2.5”, M.2

### Client SSD

**1100-1300 Series** (3D NAND)
I/F : SATA
Density : 256GB～2TB
F/F : 2.5”, M.2

**2200 Series** (3D NAND)
I/F : NVMe (PCIe)
Density : 512GB～2TB
F/F : M.2

### Industry SSD


**M500IT Series** (MLC/pSLC)
I/F : SATA
Density : 32GB～128GB
F/F : 2.5”, mSATA

For inquiries, contact Marketing Dept. II, Micron Group TEL.03-5462-9653

e-NEXTY Feature: Special Interview

# Executives' Insight on the Launch of e-NEXTY


With the continued evolution of electronics, there is a strong need to shorten product development time and improve design to respond to trends towards, for example, miniaturization and increased sophistication. From the standpoint of development environment, engineers are expected to have more diversified skills due to the increasing complexity of development.
To respond to this situation, NEXTY Electronics decided to launch "e-NEXTY," a website designed with development engineers in mind, providing the ability to search for parts, edit block diagrams, and do other tasks right online. Given this background, we interviewed NEXTY Director Shinichi Hosoda and Executive Officer Jun Ito to hear their thoughts on e-NEXTY and talk about the events that led to its creation.

## Making things easier and more convenient e-NEXTY, a support site for engineers, makes its debut!

**Q : Can you share a brief outline of e-NEXTY and its basic concept?**

**Hosoda**: E-NEXTY is a convenient website that lets customers communicate with us to get various data online without having to go through sales, technical, or quality staff, and it also provides them with tools that are useful in design work. We also launched an e-commerce site called "NEXTY Chip One Stop" in partnership with Chip One Stop, Inc. to make it possible to order samples or prototypes right online. Of course, individual semiconductor manufacturers are also improving their digital services, but getting them from NEXTY, a comprehensive electronics trading house, allows users to get information from a wide range of manufacturers in 'one stop' without being limited to any specific manufacturer or brand.

**Q : Who is e-NEXTY's target user?**

**Ito**: In a nutshell, our main target is engineers engaged in agile development whose primary aim is to speed-up prototype development or test the viability of a principle or theory. e-NEXTY is a tool for engineers who want to just get something up and running, want to complete development as quickly as possible, or even want to bypass the 'sales talk' and get right to the products.

**Q : What events led to the launch of e-NEXTY?**

**Hosoda**: We are living in an age where shopping online has become much more convenient than going to a department store. We concluded that electronics trading houses will not continue to survive without providing the tools to review, select, and purchase electronic devices online.

**Ito**: NEXTY Electronics also has its own development department, which had been urging us to try this out from a while back. In the age we live in, with basic technologies are permeating every corner of the world, it's important to leverage technology to demonstrate concepts quickly. Surely there are many engineers that feel the same way. We wanted to launch this tool in hope that we could provide support to such people.

**Q : Why did you decide to launch the service at this time?**

**Hosoda**: In fact, the launch should have been even sooner. Digital marketing (internet-based electronic device sales and support) was actually conceived at our company about two years ago, and we intended to launch it sooner, but spent more time with a focus on fully realizing the service than expected.

**Ito**: Several unexpected difficulties came up during development, which resulted in a launch in this timeframe. We would have preferred an earlier launch, but nevertheless, it's still not too late.

**Q : Tell me about some of the difficulties you encountered in establishing the service.**

**Hosoda**: We already had an existing parts search engine called "ELISNET." But beyond just giving customers the ability to search for electronic parts, we spent a long time discussing what customers would most appreciate being able to accomplish online. As a result, we hit upon the idea of a parts search database combined with a circuit block diagram service ("My Block Diagram") and parts purchasing feature. My Block Diagram was created by an entire team of our database, development and support technicians.

**Ito**: We already had parts-level database, so we just had to

make it work together with a block diagram creating feature. While ensuring the diagram creation tool is user-friendly, we also had to connect it with the existing database and lead users towards part purchases. Put simply, we had to make sure the most basic functions worked together reliably.

## Significantly Reducing the Time Needed for Customers to Find Parts While Provide Feelings of Security

**Q : To customers, what is the benefit of NEXTY Electronics providing services?**

**Hosoda**: One of the biggest benefits is speed, since customers don't need to contact a sales agent to find parts. The e-NEXTY database also lets them check a wide range information right online. This includes 'discontinued/soon-to-be discontinuation warnings', 'various vehicle and standards compliance information', and 'part-usage track record in the industry'.
By using My Block Diagram, customers can also visualize and store their selected parts as data. Speeding up the part selection process for customers was our top priority in creating this.

**Ito**: It's not only about speed but also providing feelings of security, but also provide feelings of security. Since we provide info on things like the part's usage track record, users can clearly grasp, for example, industry or even global trends. Plus, since users can get quality and other info all at once, it not only helps them develop prototypes quickly, but also search for parts in way that bears in mind aspects like mass production. Above all, this one tool replaces the multiple emails and phone calls to get information on each individual part.

**Q : Does e-NEXTY support both prototypes and mass-produced products?**

**Hosoda**: At present, e-NEXTY is only intended to support customers at the planning and development stage. Like we mentioned earlier, prototype parts can currently be purchased at NEXTY Chip One Stop. As usual, NEXTY Electronics continues to provide support for mass production.

**Q : Can you give some examples of how, and in what scenarios, e-NEXTY can be used?**

**Ito**: I would invite people to just give it a try to see how it works. There is more to it than just prototypes; you can also find parts with mass production in mind, so it offers not only speed but also feelings of security. 'Agile design' is important in the age of speed. Why not try implementing it with e-NEXTY?

## Free Registration and Generous Features Make e-NEXTY an Indispensable Tool for Customers.

**Q : What do people need to do to get started using e-NEXTY?**

**Hosoda**: The first step is to register as a member. We decided to use a membership system from the standpoints of information confidentiality, information control, and personal information handling. However, membership itself is free, so please don't hesitate to sign up.

**Q : What features do you intend to enhance in the future?**

**Hosoda**: We plan to increase the number of parts available on the parts search engine, improve features of My Block Diagram, and enhance the technical and quality info available only to members. We want to create a system in which members can get quality, environmental and any other information they need right away.
We have also established an ODM/EMS project to support the manufacturing efforts of our customers. In addition to selling parts, we also offer various design support, as well as outsourcing of work activities and production. We also have staff in place to facilitate the production, quality, and development of these efforts.

**Q : What are your plans for the future?**

**Hosoda**: We consider this to be a "sales revolution" in the electronic device industry, and are committed to aggressively investing in e-NEXTY. We are also dedicated to ensuring that it becomes an indispensable tool for customers by striving to realize a website that is feature-rich, convenient, and easy to use.
Also, although this service is only for Japan right now, we plan to roll it out globally by releasing an English version as soon as possible.

**Ito**: Production support functions will be added in the future. We first need to structure it such that it can support the entire range of workflow—from planning to development and production. We will also continue to expand long-term support services with a supply recommendation feature, alternative solutions in the unlikely event of supply disruption, a design changing service, and more.

**Q : Any final words?**

**Hosoda**: It's very difficult to gather information by visiting each semiconductor manufacturer's website one at a time, so we encourage people to register as members for e-NEXTY. I also want to mention that our customers' opinions are very important to us. If any of you have problems or ideas for improvement, please don't hesitate to let us know. We look forward to having you sign up—to serve you even better!

**Ito**: This is a remarkable tool for getting information and whenever you please with total peace of mind. We invite our customers to take full advantage of it. We are also eager to implement customer recommendations, so if there is info you want added, please share your candid feedback with us. We are dedicated to continually improving the system in terms of both quality and quantity of its features and information.

### e-NEXTY Development Support Site: Online 'Parts Searching' and 'Block Diagram Creation' at your Fingertips

Block diagrams and circuit diagrams are generally created from the ground up when designing electronic products. However, with the e-NEXTY website, users can access reference design templates categorized by application, which can be used as a base to edit to complete their own block diagram. In the future, we intend to add a feature to convert completed block diagrams to circuit diagrams based on reference info we have.

### The 5 Key Points of e-NEXTY

**POINT 1** Provides an electronic parts search engine of over 2 million parts Can even generate a BOM list!

**POINT 2** Edit application-specific reference block diagrams and save them as their own block diagrams!

**POINT 3** Convert from a block diagram to circuit diagram Can be used for artwork!

**POINT 4** Offers a comprehensive set of services for signal and power supply quality, noise simulation including housing, and more!

**POINT 5** Provide seamless integration with our EC site for easy purchasing even from a single device!

**Free registration! Visit below to register as a member**
**https://www.e-nexty.com/**