Equipped with five research labs with cutting edge digital environments
「Fukushima Digital Innovation Center」（FDIC）

Research Lab	Lab overview	Newly preparation equipment	Research servers
AI Lab **（Artificial Intelligence）** **AI Lab.**	・Large-volume data AI model using computational servers equipped with multiple GPUs. ・Demonstration of AI chip processing performance using power measurement equipment and FPGA. ・Preparation of a demonstration environment for various AI+IoT processing.	【Preparation of FPGA equipment】 FPGA board①・Terasic DE10-Nano Kit（2sets） FPGA board②・Terasic Starter Platform for OpenVINO(tm)Toolkit（2sets） FPGA board③・Xilinx Kria KR260 Robotics Starter Kit （2sets） FPGA board④・AMD VCK5000 Versal Development Card（1set） Computer with FPGA board ・raytrek 4CZ46+ Intel(R) Core(TM) processor 14900KF installed（2sets）	【Cloud Services】 AI Server （Paid：50,000 yen per month） ＜Specification＞ CPU: Intel Xeon Silver 4416+（2GHz, 20 cores, 37.5MB）x 2 Memory: 64GB 4800 RDIMM x 8 GPU：NVIDIA H100×4
DS Lab **（Data Science）** **Data science Lab.**	・Massive data processing environment using computation servers. ・Visualization and demonstration of analysis results. ・Data interface/analysis tool development.		【Cloud Services】 General Server （Paid：35,000yen per month） ＜Specification＞ CPU: Intel Xeon Gold 6426Y（2.50GHz, 16 cores, 37.5MB）x 2 Memory：32GB 4800 RDIMM×2
CN lab **（Carbon neutral）** **Carbon neutral Lab.**	・CO2 circulation and renewable energy related monitors. ・Compatible with various energy management systems. ・Aizuwakamatsu City Decarbonization Pioneer Regional Collaboration.		
CS lab **（Cyber security ）** **Cyber security Lab.**	・Preparation of cyber range exercises. ・Creation and verification of the latest scenarios for exercises. ・Robot security demonstration environment.	【Preparation of Human Resources Training】 ①NPC for students ・raytrek R5-RL5R（30sets）	
CPS lab **（Cyber Physical System ）** **Cyber Physical System Lab.**	・Preparation of the motion analysis room. ・Robot-related CPS demonstration experiment support. ・Demonstration of building a virtual environment with remote locations.	【Preparation of VR equipment】 ①VR goggles ・Meta Quest 3 512GB（2sets） ・Meta Quest Pro（1set） ②Motion capture full tracking device ・Uni-motion Full (2sets) ③3D compatible VR camera ・RF-S3.9mm F3.5 STM DUAL FISHEYE（1set） ・Canon mirrorless camera EOS R7 body （1set） ④VR Treadmill・KATWALKC 2 CORE（1set） ⑤Computer for VR environment development ・GALLERIA ZL9C-R47-C7（2sets） ⑥Tablet for VR environment development	【Motion Analysis Room】 Motion Capture （Paid：19,800 yen per session）

Preparation of FPGA equipment

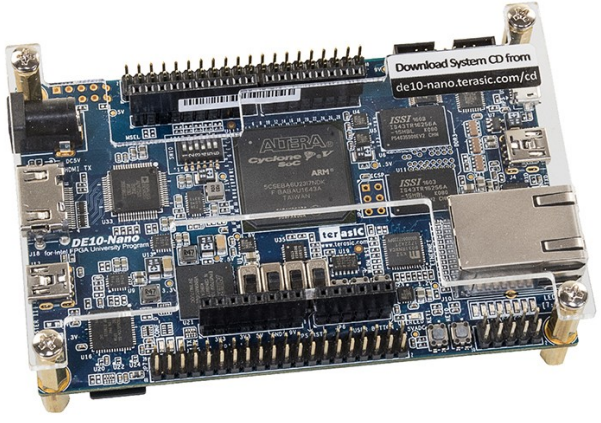
【Overview 】

It is equipped with an integrated circuit that can be configured by the designer, allowing specifications to be changed and customized to suit the application and needs.

【Equipment】

FPGA board

①Terasic DE10-Nano Kit（2sets）



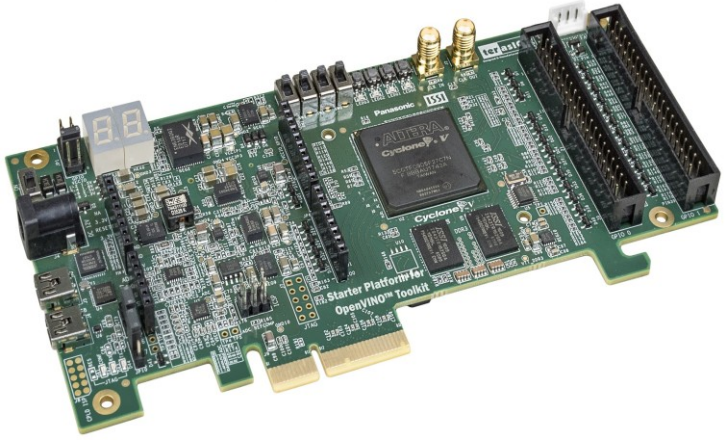
- ●Design platform built around the Intel System-on-Chip (SoC) FPGA.
- ●Combines the latest dual-core Cortex-A9 embedded cores with industry-leading programmable logic for ultimate design flexibility.
- ●It equipped with high-speed DDR3 memory, analog to digital capabilities, Ethernet networking, and much more that promise many exciting applications.

Reference URL：https://www.terasic.com.tw/cgibin/page/archive.pl?Language=English&No=1046

【 Equipment 】

FPGA board

②Terasic Starter Platform
for OpenVINO(tm)Toolkit （2sets）



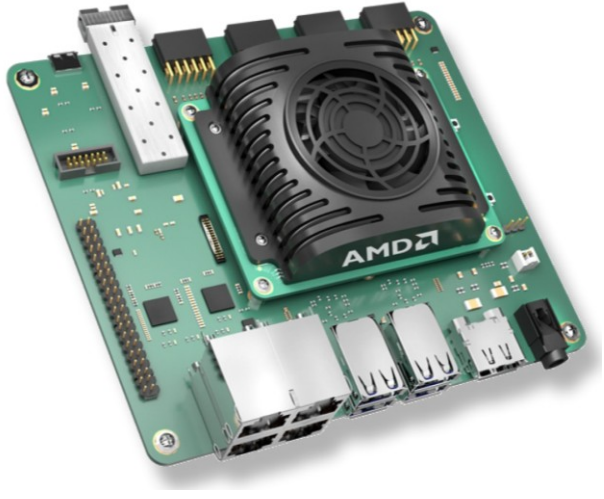
- The board is a PCIe based FPGA card.
- The board comes with 1GB DDR3, 64MB SDRAM, UART-to-USB interface, and extension headers such as GPIO and Arduino.
- The package of this board includes reference designs for all the peripherals onboard.
- The board is a perfect as OpenCL HPC (High Performance Computing) development platform.
- It supports Intel FPGA OpenCL BSP for developers to design a system with high level programming language.
- The computation demanding tasks can be off-loaded from CPU to FPGA, resulting in significant system performance improvement.

Reference URL：https://www.terasic.com.tw › cgi-bin › page › archive.pl

【 Equipment 】

FPGA board

③Xilinx Kria KR260
Robotics Starter Kit（2sets）



●Optimize for KRIA™ K26 SOM
- 2x 240-pin connectors
- All SOM I/O available for sensor & network connectivity

●High Peformance Industrial Vision
- SLVS-EC Rx
- 4x USB 3.0 for camera interfaces
- DisplayPort™ 1.2a

●Real-Time Networking Interfaces
- 4x RJ45 Ethernet Ports (10/100/1000)
- 1 SFP+ optics (10G) for 10 GE Vision

●Expansion w/PMODs & RASBERRY PI Headers
- Extend to any sensor or interface
- Broad Pmod ecosystem

＊Xilinx to merge with ADM in June 2023

Reference URL：https://www.amd.com/ja/products/system-on-modules/kria/k26/kr260-robotics-starter-kit.html

【 Equipment 】

FPGA board

④AMD VCK5000 Versal Development Card（1set）

- The card is built on the AMD 7nm Versal™ adaptive SoC architecture.
- The card is designed to optimize 5G, data center compute, AI, signal processing, radar, and many other applications.
- Delivering the near 100% compute efficiency per watt in standard AI benchmarks.
- 2x TCO compared to the flagship nVidia GPUs.
- The card is ideal for CNN, RNN, and NLP acceleration for your cloud and edge applications.

Reference URL：https://www.xilinx.com/products/boards-and-kits/vck5000.html

【 Equipment 】

Computer with FPGA board （2sets）

raytrek 4CZ46+ Intel(R) Core(TM) processor 14900KF installed

■Form: Desktop type
■OS：Windows 11 Pro
■CPU: Intel Core i9-14900KF
■Memory ：128GB (32GBx4)
■Graphics card ：NVIDIA GeForce RTX 4060 8GB
■Storage：4TB SSD (NVMe Gen4)
■Other software ：Office Standard 2021 LTSC
■Display ：23.8型
■Mouse: USB Type-A, Blue LED method
■Keyboard: USB Type-A, Japanese (JIS compliant), no numeric keypad

Preparation of VR equipment

【 Overview 】

Creates a virtual space and provides a system for experiencing it as if it were real.
In addition to entertainment, it can also be used in fields such as education, medicine, and business.

【 Equipment 】

① VR goggles

Meta Quest 3 512GB（2sets）

- Infinite Display goes beyond 4K
- Immersive 3D Audio
- Customizable head strap
- Double the GPU processing power

Reference URL：https://www.meta.com/jp/quest/quest-3/

Meta Quest Pro（1set）

- Equipped with 10 advanced VR/MR sensors
- Patented pancake lens and display technology reduces optical stack by over 40%

＊Currently out of stock

Reference URL：https://ja.wikipedia.org/wiki/Meta_Quest_Pro

【 Equipment 】

② Motion capture full tracking device （2sets）

Uni-motion Full

By attaching sensors to each part of the body, it is possible to synchronize the human's movements with the avatar's movements. Using this technology, it is possible to work as a VTuber or move your body in VR content such as VRChat.

- Uni-station × 1
- USB MicroB cable × 1
- Uni-sensor × 6
- Uni-sensor holder × 7
- Uni-motion number sticker × 2
- Chest and waist belts （95cm） × 2
- Thigh belt （60cm） × 2
- Shin belt （39cm） × 2
- Uni-motion special case × 1
- Information sheet, warranty card × 1

■Completely wireless
■Can be used continuously for 24 hours
■No battery charging required (battery operated)
■Lightweight 15g

Reference URL：https://uni-motion.com/

【 Equipment 】

③3D compatible VR camera（1set each）

RF-S3.9mm F3.5 STM DUAL FISHEYE

●3D VR shooting possible when combined with EOS R7.
●A 144° angle of view that eliminates distracting reflections.
●The lens itself weighs just 290g, making it compact and lightweight.
●Uses special coating ASC to prevent flare and ghosting.
●High-speed and highly accurate AF.
●Equipped with a focus/control ring.

Reference URL：https://personal.canon.jp/product/camera/rf/rf-s39-f35-dfe/feature

Canon mirrorless camera EOS R7 body

●High-speed continuous shooting possible
・Mechanical Shutter , Electronic Front Curtain
Maximum approx. 15 frames/sec
・Electronic Shutter
Maximum approx. 30 frames/sec
●Equipped with high-speed shutter
・Mechanical shutter, electronic front curtain
Up to 1/8000 sec.
・Electronic Shutter
Up to 1/16000 seconds
●Equipped with APS-C size CMOS sensor

Reference URL：https://store.canon.jp/online/secure/eosr7.aspx

【 Equipment 】

④VR Treadmill（1set）

KATWALKC 2 CORE

●Equipped with the "KATVR" controller that allows you to walk in VR space on your own two feet.
●Can be used for a wide range of purposes, including VR games, safety education, vocational training, research, and development.
●Fully link your feet with the virtual world.
●Supports VR content that involves "movement“.
(There is also a dedicated SDK, and it is compatible with Unity and Unreal Engine.)
●Use of a treadmill keeps the working area fixed.

Reference URL：https://katvr.jp/

【 Equipment 】

⑤Computer for VR environment development （2sets）

GALLERIA ZL9C-R47-C7

■Form：Notebook type
■OS：Windows 11 Pro
■CPU：Intel Core i9-14900HX
■Memory：32GB
■Graphics Board ：GeForce RTX4070 8GB LaptopGPU
■Storage：1TB SSD (NVMe Gen4)
■Other software：Office Standard 2021 LTSC
■Display: 17.3 inches
■Wireless LAN：Wi-Fi 6E AX211NGW
■Mouse：USB Type-A, Blue LED method

⑥Tablet for VR environment development （1set）

iPad Pro 11 inch 256GB WiFi model

■Form：Tablet
■OS：iOS
■CPU：Apple M4 chip
■Memory：8GB
■Storage：256GB
■Display：11-inch
■Wi-Fi Model

Reference URL：https://www.apple.com/jp/ipad-pro/

Preparation of Human Resources Training

【 Overview 】

Providing a comprehensive PC environment for various ICT-related seminars.

【 Equipment 】

① NPC for students （30sets）

raytrek R5-RL5R

■Form：Notebook type
■OS：Windows 11 Pro
■CPU：intel Core i7-13620H
■Memory：16GB
■Graphics Board：GeForce RTX 3050 6GB LaptopGPU
■Storage：1TB SSD (NVMe Gen4)
■Other software：Office Standard 2021 LTSC
■Display：15.6-inch
■Wireless LAN：Wi-Fi 6E AX211NGW
■Mouse：USB Type-A, Blue LED method

Reference URL：https://www.dospara.co.jp/TC462/MC16555.html?msockid=1f820ef353276656252a1b9f527a67cc