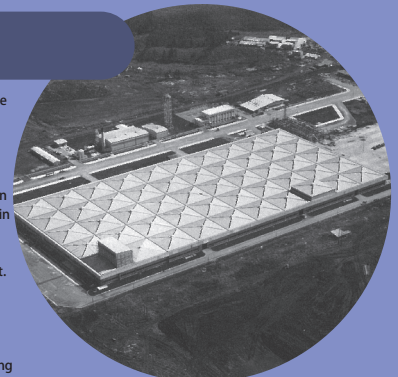


# FUJIKURA NEWS 9

2020 No.469

Fujikura Modern history -5  
Japan as Economic Power

To emerge from the structural recession, or the slump in the 1960s, the government strengthened economic measures by making additional fiscal investments and loans and issuing long-term government bonds. Japan became the world's second economic power in terms of GNP because of the economic boom in the late 1960s. Fujikura promoted the modernization of management through proactive management. Sakura Works, built from 1970 to 1976, was more modernized than Fukagawa and Numadzu Plants and contributed to the improvement in results as a productive plant centering on manufacturing the world's leading communication cables.



Sakura Works (A Plant)

Electronics

## Fujikura's Cold Plate Used in Supercomputer Fugaku

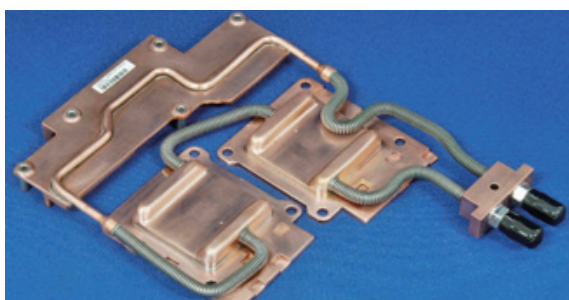


Fujikura's cold plate has been used in the supercomputer, Fugaku, which has been jointly developed by RIKEN and Fujitsu Ltd.

Fugaku is the world's highest level super computer, ranked top in the four major categories of TOP500, HPCG (High Performance Conjugate Gradient), HPL-AI, and Graph500, in which supercomputers compete on the basis of calculation speed and other performance. Supercomputers are large-scale computers mainly aimed at scientific and technological computing and are expected to greatly contribute to the latest research and development by taking advantage of their excellent computational ability. The applications include meteorological prediction, earthquake simulation, improvement of prediction accuracy of natural disasters such as local downpours, use in the pharmaceutical and medical fields dealing with cancer and the new corona virus, generation of new materials and energy.

Since the high-performance CPU used in Fugaku generates large amounts of heat, the Fujikura cold plate is used for efficient cooling technology in small space.

This cold plate is a high-performance liquid-cooled unit (Fig. 1) with a microchannel fin structure. The cold plate is

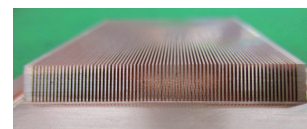


● Cold plate used incorporated in supercomputer Fugaku

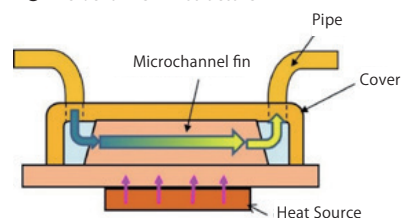
characterized to have cooling capability of several times as high as that of an air-cooled unit although its size is one thirds of the air-cooled device. The ability of our cold plate has been highly recognized, it was decided to be used in the Fugaku.

We are working on many products using our thermal technology, such as heat pipes used in cooling of electronic devices such as personal computers and smartphones.

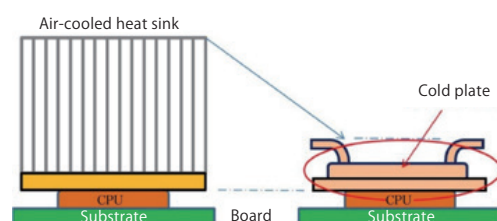
We will continue to make efforts in improving the performance of the devices in the thermal technology field including the cold plate and provide products to live up to customer expectations.



● Microchannel-fin structure



● Fig. 1 showing fundamentals of liquid-cooled unit



● Fig. 2 Space comparison between air cooling unit and liquid cooling unit

## Fujikura Expands Lineup of Thin Dye-Sensitized Solar Cells Thickness Reduced by 50% Offers Easy Installation in IoT Devices



Fujikura Ltd. has expanded its product lineup of thin Dye-Sensitized Solar Cell (DSSC) module panels and started the sales of those panels.

Recently, efforts have been made to improve efficiency and to automate by using IoT sensing in various fields such as smart factories, smart agriculture, and infrastructure monitoring. Accordingly, the development of multiple IoT devices is accelerating with the increase in the variety of installation sites and environments. The use of solar cells as a power source of such IoT devices is also growing, taking into account its potential to enable reductions in environmental burdens, as well as installment and maintenance costs.

Under these circumstances, Fujikura has commercialized DSSC module panels with excellent features, such as long term reliability and high power generation efficiency even under indoor illuminance. These products have been valued by many customers who are considering to introduce them. On the other hand, customer needs for

solar cells in various shapes and sizes have been growing in line with the increase in IoT device usages and diversification of their sizes.

In response to such requirements, Fujikura has expanded its product lineup of thin DSSC module panels with one half thickness of existing products and released the new products. The increase in the model range will enable easier designing and installing our panels into IoT devices and provide wider choice of options in designing devices and uses.

In addition to the new products, Fujikura has launched online supporting services on electric circuit designing so that customers can quickly and conveniently evaluate our DSSC module panel and select it as a power source of their devices. We believe this service will provide our customers with solution to issues in selecting a power source, reduce development lead time and contribute to earlier realization of an IoT society.

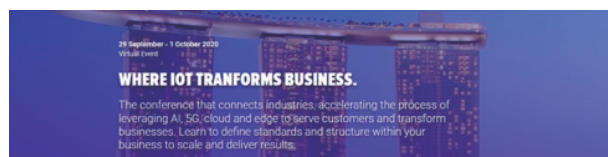
### ● DSSC module panel lineup

	NEW FDSC-FSC7FGC	FDSC-FSC4FGC	NEW FDSC-FSC5FGC	NEW FDSC-FSC12FGC	FDSC-FSC10FGC
Dimensions	70.0mm×92.0mm	56.0mm×112.0mm	44.0mm×85.0mm	23.9mm×62.3mm	39.9mm×35.0mm
Thickness	2.5mm				
Maximum power* (P <sub>m</sub> )	340 μW (243 μW以上)	300 μW (214 μW以上)	165 μW (117 μW以上)	45 μW (32 μW以上)	42 μW (30 μW以上)
Operating current* (I <sub>op</sub> ) @0.38V	796 μA (569 μA以上)	776 μA (554 μA以上)	425 μA (304 μA以上)	117 μA (83 μA以上)	108 μA (77 μA以上)
Open circuit voltage* (V <sub>oc</sub> )	0.58V (0.45-0.65V)	0.50V (0.45-0.65V)			
Remarks	Light sources : LED 200 lx. Ambient temperature : 23°C				

Please visit our website (<https://dsc.fujikura.jp/en/>) for more detailed information.

\*Upper: typical value, (Lower: specified value)

Fujikura is participating in the following online virtual events with this product. We look forward to your visit to our exhibition.



● Internet of Things World Asia (29 Sep. - 1 Oct. 2020)  
URL: <https://tmt.knect365.com/iot-world-asia/>



## Fujikura Acquires Experimental License on New 5G Band (66~71GHz) and Begins Field Experiments



Fujikura Ltd. (President & CEO: Masahiko Ito) has developed a millimeter-wave communication module operating at a new 5G band (66~71GHz) identified in the World Radiocommunication Conference 2019 (WRC-19) and acquired a license of the experimental radio station for this frequency band to conduct a variety of experimental field tests.

This frequency band has already been allocated as an unlicensed band in the US, but WRC-19 has newly identified it as a globally allocatable 5G band and is expected to be used all over the world. We start field tests using this frequency band to find out its characteristics and effective use cases such as FWA and V2X. We will push forward with developing the next generation of 5G wireless communication devices.

We also start providing samples of SDK (Software Development Kit) that combines the 60GHz millimeter-wave communication module operating at 57~71GHz applied to the experimental radio station with a network controller.

Users can confirm its communication performance by connecting with network equipment since the SDK works as a millimeter-wave wireless router. Users can also monitor the detailed information about the wireless link such as SNR (Signal to Noise Ratio) or MCS (Modulation and Coding Scheme) by using the SDK commands.

Our millimeter-wave communication modules are applicable not only to the experimental radio station but also to backhaul\*1 network equipment, access points\*2, customer premises equipment and V2X\*3 applications. We will contribute to customers' development by providing much easier test environments by the SDK.

\* 1 Backhaul : Relay link that connects the base stations to the core network

\* 2 Access point : Wireless equipment that connects the wireless terminals to other networks

\* 3 V2X (Vehicle-to-Everything) : A general term for vehicle communication, such as vehicle-to-vehicle and vehicle-to-infrastructure communications



● Experimental Radio Station



● SDK

● SDK Major Specifications

Radio interface	57-71 GHz (802.11ad standard-compliant)
Network interface	2 × 1 Gbps Ethernet
Power supply(AC adapter)	AC100-240V/50-60Hz
Size	120mm(W) x 130mm(D) x 140mm(H)/815g

Information

## Fujikura Selected for FTSE4Good Index Series, International ESG Investment Index, Five Years in Row



Fujikura has been selected five years in row for a series of global indexes, FTSE4Good Index Series, which focuses on each aspect of environmental, social and governance practices of companies. In addition, the company has also been chosen four years in row for an ESG index, FTSE Blossom Japan Index, which is adopted by Government Pension Investment Fund (GPIF), which is the largest pool of pension savings in the world and for MSCI Japan

Empowering Women Select (WIN) Index twice.

As well as for each of these indexes, in 2018, we were also selected for S&P/JPX Carbon Efficient Index, which focuses on the aspect of the environment of ESG.

The Fujikura Group will further make efforts in promoting ESG activities with the aim of realizing a sustainable society and continued development of the company through our Tsunagu (connecting in Japanese) Technologies.

### ● Fujikura's record of being selected for major ESG investment indexes



#### FTSE4Good

##### •FTSE4Good Index Series (selected every year since 2016)

The series of global ESG investment indexes are designed by FTSE Russell, a 100% subsidiary of London Stock Exchange Group, and include companies considered superior from the ESG viewpoint.



#### FTSE Blossom

##### •FTSE Blossom Japan Index (selected every year since 2017) \*

The ESG investment index is maintained by FTSE Russell and includes Japanese companies that are composed of FTSE Japan Index and meet the global ESG standards.

#### 2020 CONSTITUENT MSCI日本株 女性活躍指数 (WIN)

##### •MSCI Japan Empowering Women Select (WIN) Index\*

The index is introduced by MSCI, a US major finance service company and covers Japanese companies that lead the industries in terms of gender diversity based on the data on the employment of women and their promotion and diversity initiatives.



##### •S&P/JPX Carbon Efficient index\*

The index is provided by S&P Dow Jones Indices LLC, a financial market indexes company, to measure the performance of companies in the TOPIX. The index overweights or underweights those companies that have lower or higher levels of the disclosure of environmental information and carbon emissions per unit of revenue.

\* ESG index adopted by GPIF



Corporate Communications Division

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