

Press



RELEASES

PR-No. 10 – 10. October 2023

Espressif Takes the Lead in Supporting Bluetooth® Mesh Protocol 1.1

Espressif, with its dedication to researching and developing products and solutions in Bluetooth Low Energy wireless communication, has the technical prowess and innovation capabilities to provide advanced and reliable support for Bluetooth Mesh-based IoT applications.

Shanghai, China, Sep 18, 2023

Espressif Systems (688018.SH) is pleased to announce that its self-developed Bluetooth Mesh protocol stack, ESP-BLE-MESH, now fully supports the latest Bluetooth® Mesh Protocol 1.1. Espressif is one of the first companies to offer support for this update, prior to its formal release by Bluetooth SIG. This means that Espressif, with its dedication to researching and developing products and solutions in Bluetooth Low Energy wireless communication, has the technical prowess and innovation capabilities to provide advanced and reliable support for Bluetooth Mesh-based IoT applications.

ESP-BLE-MESH is Espressif's proprietary protocol stack built upon Bluetooth Mesh. Any IoT devices based on it can communicate and collaborate with different types of standard Bluetooth Mesh devices from different manufacturers.

Espressif has been actively involved in promoting the development and implementation of SIG protocols, and has received recognition from the Bluetooth SIG for significantly contributing to the Mesh Profile Enhancement with CBP, ENH, EPA, PRB, and SBR improvements.

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
85055 Ingolstadt

www.macnica.eu

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
81379 Munich



Press



RELEASES



Our working group and committee members make Bluetooth technology the best it can be.

Working groups have been the driving force behind Bluetooth® technology, delivering innovations that help make the Internet of Things (IoT) a reality.

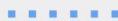
Every year, the Bluetooth Special Interest Group (SIG) celebrates the hard work and commitment of working groups, committee members, and contributors who have been recognized by their peers as making a difference in advancing Bluetooth technology. Thank you to the winners, and to all of our working group and committee members, for their dedication and contribution this year.

Bluetooth SIG appreciation – Recognition of IOP Participation

Mesh Device Firmware Update Mesh Profile Enhancements (CBP, ENH, EPA, PRB, SBR)

Michal Narajowski Codecoup sp. z o.o.	Espressif Systems (Shanghai) Co., Ltd.	Mike Weng Infineon Technologies AG	Badrinarayanan K MindTree Limited	Peter Kozar Silicon Laboratories	Piotr Winiarczyk Silvair, Inc.
Telink Semiconductor (Shanghai) Co., Ltd	Chirag Kharwar Qualcomm Technologies, Inc.	Jagdeep Kumar Hans Qualcomm Technologies, Inc.			

Please note that this image does not include a comprehensive list of all awards.



<https://www.bluetooth.com/specifications/specs/mesh-protocol/> represents a significant milestone in Bluetooth technology, introducing numerous innovative features aimed at standardizing device configuration and network management. Its primary goal is to enhance the stability, security, and scalability of Bluetooth Mesh networks.

Bluetooth Mesh 1.1 introduces several notable features, including:

1. Directed Forwarding

Bluetooth Mesh 1.0 utilizes a "Managed Flooding" approach to publishing and relaying information, involving all relay nodes within the transmission range. This design is

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
85055 Ingolstadt

www.macnica.eu

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
81379 Munich



Press



RELEASES

straightforward and reliable, as the failure of any node within the network does not impact the overall network. However, the drawback is that the participation of all devices in relaying can result in increased network load.

Not only does Bluetooth Mesh 1.1 maintain support for "Managed Flooding", but it also introduces a new routing mechanism called "Directed Forwarding". In this mechanism, nodes can deliver messages to the target node through one or multiple predefined paths. These paths can be dynamically created or specified by users through DF Configuration Models. This innovation greatly reduces the need for relay nodes, effectively alleviating the network congestion problem of all nodes participating in forwarding when sending longer data packets in a dense Bluetooth Mesh network.

It is worth mentioning that Bluetooth Mesh 1.1 supports dynamic switching between "Managed Flooding" and "Directed Forwarding". For example, in the "Directed Forwarding" mechanism, if the current node only maintains one forwarding path to the target node and the corresponding relay node on that path fails, the network will need some time before it can detect the node failure and establish a new routing path. In this case, the network can seamlessly switch to the "Managed Flooding" mechanism to send message data promptly.

2. Remote Provisioning

In Bluetooth Mesh 1.0 network, provisioners can only provision unprovisioned devices within their RF communication range. Users need to move the provisioner closer to each unprovisioned device to complete the entire network's provisioning process.

Bluetooth Mesh Protocol 1.1 introduces the Remote Provisioning mechanism, where all relay nodes within the network can forward provisioning data to unprovisioned devices through a Remote Provisioning Server. This means that devices beyond the direct radio range can join the network without requiring the provisioning device to be physically moved. As a result, the network's configuration costs are notably decreased, making it easier for the network to be expanded



Press



RELEASES

3. Subnet Bridge

With the introduction of Subnet Bridge in Bluetooth Mesh Protocol 1.1, nodes from different subnets in the network can directly communicate with each other through bridge nodes. This innovative feature provides technical support for building larger-scale and more complex mesh networks, further expanding the application scenarios of Bluetooth Mesh.

4. Enhanced Provisioning Security

Bluetooth Mesh 1.1 enhances the security of provisioning by introducing the Certificate-Based Provisioning (CBP) and Enhanced Provisioning Authentication (EPA) functions. CBP verifies the public key and UUID in the device certificate, through the X.509 certificate's Public Key Infrastructure (PKI). The X.509 device certificates can be provided by device manufacturers or suppliers and be used during the provisioning process, to improve out-of-band authentication security. EPA provides a more secure authentication mechanism against man-in-the-middle attacks (MITM), enforcing mandatory verification for unprovisioned devices and ensuring provisioning security.

5. Enhanced Privacy

Bluetooth Mesh Protocol 1.1 protects beacon-transmitting devices from illegal tracking by introducing private beacons, thereby enhancing privacy protection within the network. This feature ensures the privacy and security of devices in the network by obscuring beacon data and improving beacon structure. The introduction of Bluetooth Mesh 1.1 has significantly the capabilities of IoT applications that leverage this technology. Espressif's ESP-BLE-MESH offers comprehensive support for Bluetooth Mesh Protocol 1.1, which provides the industry with a more robust and refined Bluetooth solution. Our unwavering commitment to technological innovation drives us in leading the development of Bluetooth technology, based on our expertise in interconnected devices.

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
85055 Ingolstadt

www.macnica.eu

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
81379 Munich



Press



RELEASES

Availability and Pricing

If you are interested in Espressif's ESP-BLE MESH protocol and Bluetooth Mesh 1.1, please contact our customer service team who will get back to you as soon as possible.

For more information availability and pricing please visit email:

sales.europe@macnica.com.

Contact:

Press

Macnica ATD Europe GmbH

Josef Sigl

Tel. +49-89-899143-11

Email: sales.europe@macnica.com

Sales

Macnica ATD Europe GmbH

Tel. +49-84188198-102

Email: sales.europe@macnica.com

About Espressif Systems

Espressif Systems (Shanghai) Pte. Ltd. is a fabless semiconductor company, with headquarters in Shanghai Zhangjiang High-Tech Park, providing low power Wi-Fi and Bluetooth SoCs and wireless solutions for the Internet of Things (IoT).

The company build the widely popular ESP8266 and ESP32 chips with an innovative team of chip-design specialists, software and firmware developers and marketers. Espressif is committed to providing the best IoT devices and software platforms in industry.

The company also helps their customers build their own solutions and connect with other partners in the IoT ecosystem. Their passion lies in creating state-of-the-art chip-sets and enabling partners to deliver great products. Espressif's products are widely deployed in the tablet, OTT boxes, cameras, and Internet of Things markets.

For more information, please visit <https://www.espressif.com>.

About Macnica ATD Europe GmbH, (former Macnica GmbH)

Macnica's ATD Europe GmbH, (former Macnica GmbH), was originally established in the UK in 2006, and moved to Germany in July 2008, to increase efficacy of its service for European customers.

By its acquisition of the Munich based company Scantec Mikroelektronik in 2014 Macnica Europe formed a powerful semiconductor distribution with headquarter in

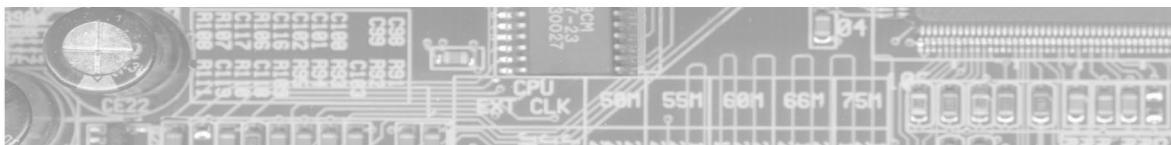
MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
85055 Ingolstadt

www.macnica.eu

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
81379 Munich



Press



RELEASES

Ingolstadt and offices in Munich, Regensburg, Milton Keynes (UK) and Warsaw offering an attractive and competitive portfolio of highly sophisticated devices.

Macnica provides end to end support from design-in to production through its global service network to its customers, regardless of the final destination of the product shipment to customers' manufacturing locations.

About Macnica ATD Europe S.A.S.

Founded in 1990 as ATD Electronique, Macnica ATD Europe headquarter offers innovative components dedicated to imaging applications for the European market. Its product portfolio includes: image sensors (CCD, CMOS, InGaAs, Thermal etc.), optics, interface circuits, FPGA & IPs, imaging processors, cables and OLED microdisplays.

It also covers development tools and design services enabling fast and efficient realization of new high-performance camera systems for markets such as machine vision, medical, life sciences, surveillance, automotive and others. After the acquisition of the company by Macnica Inc. as of October 1, 2020 the company operates under the name Macnica ATD Europe.

About Macnica, Inc.

Macnica was established in 1972 as a semiconductor distribution company headquartered in Yokohama, Japan, and has over 85 sales offices worldwide in eastern Asia, Europe and the USA. Total number of employees is over 3,900 and its consolidated revenue for fiscal 2021 was approximately US\$ 7.6 B.

Macnica is famous for having an excellent engineering team of more than 900 application support engineers, IC designers and software developers with strong focus on providing technical support for its customers including custom design services. Macnica is continuing to extend its presence globally by having successful partners in strategic areas in the electronics market.

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
85055 Ingolstadt

www.macnica.eu

MACNICA
ATD EUROPE

MACNICA ATD Europe GmbH,
81379 Munich

