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Introduction

The world’s “great shutdown” experienced in the spring appears to have gotten the COVID-19 pandemic under control. Everyone is now adjusting to the new normal and tackling the challenges of working remotely. While there is less traffic on the roads due to reduced commuting and travel, there are also difficulties with maintaining productivity while working virtually from home.

New requirements and tolls to enhance the virtual work experience will further drive technological innovation. Increased demands for remote storage, information sharing, video conferencing and communications bandwidth will require support from the electronics and power conversion industry—the same semiconductor and power supply manufacturers who are PMBus members.

Working Group Updates

The PMBus Specification Work Group continues to meet remotely on a weekly basis to discuss current development topics, w including SMBus Revision 3.2, PMBus Revision 1.4, PMBus 2.0, AVSBus 2.0,

Standard Configuration File Format and Application Profiles. The WG is nearing final reviews of SMBus Revision 3.2 and PMBus Revision 1.4 prior to submitting it for Board of Directors review and draft release for approval by the general membership. Additionally, the WG’s vision is starting to look ahead to the future and PMBus 2.0.

The Specification Work Group has renewed attention on developing and endorsing a PMBus Standard configuration file format to enable easier programming and configuration of multi-vendor power systems using PMBus and PMBus Application Profiles. They are also reaching out to other standards organizations to discuss collaboration across a broader market. Additionally, the Specification Work Group is starting to revisit existing Application Profiles with an eye on future system needs.

If you have questions or would like to contribute, please contact the leader of the working groups, Peter Miller of Texas Instruments at peter_miller@ti.com.

Membership Updates

We would like to welcome two new members to the ranks of the PMBus consortium. Faraday Semi, a wholly owned subsidiary of TDK, is now a Full Member. Additionally, Teledyne Lecroy has become our fourth Tools Member. See below for details on both companies.

Faraday Semi is a fast-growing Technology and Semiconductor Company with innovations in Systems solution focused on power management DC/DC power

conversion. Our solution includes high performance semiconductor and advanced package technologies lead to a unique system integration with higher efficiency, smaller size, lower profile, ease of use and lower system cost compared with today's state of the art products available in the market.

Teledyne LeCroy, the Instrumentation segment of Teledyne Technologies Incorporated, provides monitoring and control instruments for marine, environmental, industrial and other applications, as well as electronic test and measurement equipment. We also provide power and communications connectivity devices for distributed instrumentation systems and sensor networks deployed in mission critical, harsh environments.

With our membership growing again, our total membership count now stands at 40, which includes 36 full members and 4 tools members. You can refer to the [PMBus adopters](#) page of our website for the full details and benefits of membership.

Interested in joining PMBus? Get a detailed description of the System Management Interface Forum and membership benefits by clicking [PMBus Organization Overview](#). Or, just send an email to admin@smiforum.org to get immediate answers to specific questions.

New Product Announcements

Maxim Integrated Products new PMBus 1.3 compliant MAX20796 offers a fully integrated, highly efficient, two-phase switching regulator for applications operating from 4.5V to 16V and requiring up

to 60A maximum load or 90A with an optional third-phase external power stage. The output voltage range can be configured from 0.5V to 5.5V with some restrictions on duty cycle. The switching regulator uses a fixed-frequency control scheme providing an extremely compact, fast, and accurate power delivery solution for server and telecom applications. Integrated linear regulators allow single-supply operation.

Key system parameters are configured by external resistors, including the selection of soft-start timing, output voltage, switching frequency, 32 PMBus addresses, overcurrent trip point, and loop control parameters. The device operates with either coupled or discrete inductors. The device is also available as MAX20796A, which is preconfigured for a 1V, 800kHz application with LEAD_LAG enabled.

Maxim Integrated Products new MAX20710 is a fully integrated, highly efficient switching regulator with PMBus™ for applications operating from 4.5V to 16V and requiring up to 10A (max) load. This single-chip regulator provides extremely compact, high efficiency power-delivery solutions with high-precision output voltages and excellent transient response for networking, datacom, and telecom equipment.

The IC offers a broad range of programmable features through either the PMBus or a capacitor and resistor connected to a dedicated programming pin. The IC includes protection and telemetry features. Positive and negative cycle-by-cycle overcurrent protection and overtemperature protection

ensure a rugged design. Input undervoltage lockout shuts down the device to prevent operation when the input voltage is out of specification. A status pin provides an output signal to show that the output voltage is within range and the system is regulating.

Murata Manufacturing Co., Ltd. has added 2 new POL DC-DC converters with the PMBus interface to the small size, high power density, and high reliability “MonoBK™ (monoblock)” series. The new products are the 24A MYMGM1R824ELA5RA and 16A MYMGM1R816ELA5RA housed in a 10.5 mm × 9.0 mm × 5.0 mm (length × width × height) SMD package with a -40°C to 105°C operating temperature.

The MYMGM series is equipped with an industry standard PMBus interface that makes it possible to configure, control, and monitor power supply. It also has 20% higher power density compared with the existing “MonoBK™”. In addition, with the downsizing of modules made possible by Murata’s original packaging technology, the mounting area of FPGAs, ASICs, and other LSI power supply rails was reduced.

If your company has new products that you would like to be included in our next newsletter, just send an email with the subject line “new product(s)” and the details to admin@smiforum.org. Then watch this space for updates.

Website Updates

Even through the pandemic our members continue to release PMBus-compliant products. Currently there are 496 items displayed on the *Products* pages of the

PMBus website. Included are semiconductors and power supplies as well as other supporting material such as application notes, evaluation kits, articles, reference designs, and videos.

The dedicated *Products* pages are one of the benefits of PMBus membership. They enable our members to identify and promote all of their PMBus-compliant products. We encourage you to contact us when you are ready to include or update your company’s product listings.

You can click here to see an example of the [Artesyn Products](#) page. Be sure to utilize the “Featured Product”, option which includes graphics on your company’s page. Please send any request for changes to admin@simforum.org

New Website.

The new PMBus website is in the final stages of development and testing. We expect to launch within a few weeks. In addition to a new ‘look & feel’, the site will include simplified usability for content updates and an integrated contact database for our email and newsletter subscription list. For the 2600+ of you on our mailing list, you will receive an email notice as soon as the new website is launched.

Promotional Activities

We invite you to join the [PMBus Group](#) on LinkedIn. In the future we will be utilizing the platform for new product announcements, meeting notifications and other newsworthy items.

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Upcoming Events

Mark your calendars to visit the PMBus booth at the upcoming **APEC 2021 Conference & Expo** at the Phoenix Convention Center in Arizona March 21-25. This year Artesyn will be demonstrating their PMBus communications over an ethernet link to remotely control a power supply back at their laboratory in Arizona.

FAQ

Our *Frequently Asked Question* section this quarter is again two-part and address some areas of confusion regarding ARP protocol.

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I am working on SMBus software-side implementation and testing.

I had several unresolved questions related to ARP protocol.

Question 1: *I came across two unknown terms while examining the body of the UDID structure: Vendor ID and Subsystem Vendor ID. What do these identifiers stand for? What is the difference between them? Where can I find more information about the meaning of these fields?*

Answer 1: Vendor ID and Subsystem Vendor ID are defined in Table 5, UDID bit field descriptions. There really is no further definition of these fields.

Question 2: *I am confused about the PEC Supported field in Device Capabilities field of UDID structure. What is this field for?*

ARP requires PEC support. If the device supports UDID, it supports ARP since UDID exists only in terms of ARP. Hence, the device supports PEC and responds to ARP commands with PEC if required. Am I wrong somewhere?

*Also, the spec says, "This bit is set if the device supports Packet Error Code on **all commands** supported at the device's SMBus address associated with this UDID". But what are the real-life use cases when a device may support PEC for **not all commands** supported? Can you, please, give examples?*

Answer 2: Yes, PEC is required for all ARP related commands. But a device could have many other commands such as "Set Output Voltage" or "Read Output Current" or "Halt And Catch Fire". It is these other commands that may, or may not, support PEC depending on the device manufacturer's choices.

If all of the commands that the manufacturer implemented in the device support the use of PEC then the PEC supported bit in the 8-bit device capabilities field (as described in Table 6) should be set. Otherwise the bit should be cleared.

Have a question about the PMBus or SMBus specifications? SMIF technical volunteers provide free answers. Send your question to techquestions@smiforum.org and a PMBus or SMBus consultant will respond.



Quarterly Newsletter

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Other Items

The PMBus name and logo are registered trademarks of SMIF. PMBus adopters who are SMIF members in good standing are allowed free, unlimited commercial use of the PMBus name and logo. Proper usage of the name and logo is important in order to retain our rights. Please encourage your company's marketing communications department to collaborate with SMIF whenever there are publications or questions.

Please remember to use the ® symbol when referencing PMBus and the ™ symbol with AVSBus in data sheets, press releases or other written material. It should be included in any title or blurb and with the first usage in the main text for articles. The logo graphics for web postings and hi-res print can be

downloaded from the [resources](#) section of the PMBus website.

Contacts:

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