Quarterly Newsletter

Spring 2018

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Introduction

PMBus® Conference & Expo
Sept. 11-12, 2018
Addison Marriott Quorum by the Galleria
Dallas, TX

The dates are set. The agenda has been finalized. The venue has been selected. Now all that remains is your participation. Attend to help determine future direction and requirements of the PMBus!

The PMBus® Conference & Expo is a 2-day event for PMBus users and OEM system implementers.

- Open exchange of ideas to drive future direction
- Learn about the benefits of the PMBus open standard communications protocol
- View 3rd-party tools that support product development.

You can click here to view the up-to-date schedule of events.

Attendance is free. So space is limited. Secure your attendance now by clicking register, or going to the homepage of the pmbus.org website. After registering, you will be contacted by the Marriott Addison to reserve your room at the special event discount rate of $169/night.

Participation by systems OEMs is critical to ensure a successful outcome. Therefore, we ask for your help in identifying and reaching out to company contacts in the following industries:

- Servers & Storage
- Networking & Communications
- Medical Device Manufacturers
- Military & Space Equipment Makers
- FPGA Suppliers

Additionally, there will be a small exposition space for vendors of development tools that can support PMBus product development. It is not necessary for these companies to be a formal PMBus member to attend and demo their wares. If you are presently working with tool vendors, please share the details and urge them to participate!

Working Group Update.
The Working Group held a face-to-face two-day meeting on June 6-7. Discussions included further refinements of the AC-DC profile, other transport interfaces to increase the communications length of PMBus and standardized test configuration files along with other potential road map topics. The discussions will continue during the upcoming Conference & Expo in Dallas. So be sure to register and attend if you would like to contribute.

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Membership Updates

Congratulations to our newest member, uPI Semiconductor Corp. This increases our total membership to 45 members, comprised of 43 "Full Members" and 2 "Tools Members". We are in ongoing discussions with several new potential companies in both categories and expect to make announcements in the near future. Stay tuned to this section for further updates.

uPI Semiconductor Corp, part of uPI Group, based in Tawian, is an IC design house which designs and manufactures analog and mixed-signal power management solutions for hybrid and high power density semiconductors. uPI Semiconductor's vision is to offer customers the total power management solutions of superior quality, performance, service, and cost. With more than 20 years of analog power and discrete device experiences, uPI offers high performance design services with full technology coverage and process development capability. Excellent wafer processing and deep packaging know-how come standard by working closely with strategic foundries and assembly & testing partners.

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

Flex Power Modules announced that its BMR466 and BMR461 digital point-of-load (PoL) dc-dc power modules are now available to customers with BGA (Ball Grid Array) packaging, as well as in their original compact LGA (Land Grid Array) package. Operating from a 4.5V to 14V input, the BMR466 is ideally suited to operation across a range of intermediate bus voltages and complies with the Dynamic Bus Voltage scheme to reduce power dissipation and save energy. The factory default output voltage is set to 1.2V, but can be adjusted from 0.6V to 1.8V either via a pin-strap resistor or PMBus commands.

Linear Tech's LTC2972 2-channel Power System Manager used to sequence, trim(servo), margin, supervise, manage faults, provide telemetry and create fault logs. PMBus commands support power supply sequencing, precision point-of-load voltage adjustment and margining. Configuration is accomplished through the LTpowerPlay development environment, which supports all Power by Linear power system management (PSM) devices. Once programmed, no software coding is needed for autonomous operation.

Supply output voltages are trimmed, margined, and monitored using a 16-bit analog-to-digital converter (ADC) with 0.25% total unadjusted error (TUE), improving board yields and long-term performance. Supply output currents are measured using a sense resistor, inductor DCR, or the IMON output of a power supply. Supply sequencing, supervision, and EEPROM fault-logging are built in. Faults

trigger EEPROM black box recording, simplifying failure analysis while providing insight into future system improvements. Programmable power good, or general-purpose input/output (GPIO), pins are available with each channel.

Texas Instruments new TPSM846C23 is a 35-A fixed-frequency, PMBus-compliant, step-down power module, with PMBus commands that allow for the configuration, control, and monitoring of key power regulator functions. The module incorporates the controller, power MOSFETs, inductor, and associated components into a rugged, thermally enhanced, surface-mount package. The user supplies the input and output capacitors along with a few other passive components to set the operating parameters of the module. Two modules can be configured to work in parallel to provide up to a 70-A, two-phase power solution.

The PMBus interface provides for converter configuration of output voltage, UVLO, soft start, soft stop, overcurrent, and thermal shutdown parameters. The interface also provides support for telemetry that can report the actual output voltage, output current, and device temperature. Standard PMBus *warning* and *fault* functions are also supported. The device supports PMBus communication speeds up to 400 kHz and supports a subset of the commands in the PMBus 1.3 specification.

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

There are now 373 items PMBus listings on our members' *Products* pages. In addition to PMBus-compliant products, they include supporting material like evaluation kits, reference designs, article and videos. We encourage you to contact us when you are ready to include or update your company's product listings.

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. Please continue to contact us to include all of your company's PMBus products and other supporting items.

You can click here to see an example of the Flex Power *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.

Our website consultant is nearing completion of the development of the initial functionality and design for the new PMBus website. We expect to conduct the first internal demo testing in the coming weeks. The scheduled launch date is not set, but is expected to occur by the time you receive the next quarterly newsletter update. Time is running short if you would like to contribute input or suggestions. Members are encouraged to

submit any comments to us at admin@smiforum.org.

Promotional Activities

In order to promote registration and attendance for the PMBus Conference & Expo, SMIF will be launching a focused advertising campaign and issuing a press releases to industry print and online publications.

Upcoming Events

Refer to the *Introduction* section of this newsletter for details on **PMBus Conference & Expo.**

FAQ

The newsletter's *Frequently Asked Question* section includes a recent question which have been received, along with the detailed answer.

Question: *We are designing an ATX power supply with the usual 5 output voltages of +/-12V, -3.3V, 5V and 5vsb. Could you please explain how this should be configured using PMBus?*

Answer: For multiple output power converters the PAGE command is used. Each output will have its own "page" where commands can be sent and status read. The PAGE command sets the PAGE to be written or read.

For a brief overview of the PAGE command and how it is used, you can refer to slides 151-154 of the presentation http://pmbus.org/Assets/Present/Using_The_PMBus_20051012.pdf

In an ATX supply with five outputs you might assign:
PAGE 01 <=> +12 V output
PAGE 02 <=> +5 V output
PAGE 03 <=> +3.3 V output
PAGE 04 <=> -12 V output
PAGE 05 <=> 5 V standby output

So to set the voltage on the +12 V output:
- First send the PAGE command with the Page Number equal to 01. Now all further commands will go to the +12 V output until the page number is changed.
- Then send the VOUT_COMMAND with the desired output voltage.

If you then wanted to read the output current on the +3.3 V output, you would first send the PAGE command with the page number 03. Then you would send the ERAD_IOUT command to read the output current of the +3.3 V output.

In systems that have multiple masters that can communicate with the same PMBus® device, you may need to use the PAGE_PLUS_WRITE and PAGE_PLUS_READ commands to send a PAGE number and a command in one operation.

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

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 does not have to be done for every occurrence, but 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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