Qseven standard, optimization for ARM processors

Christian Eder

Marketing Manager congatec AG

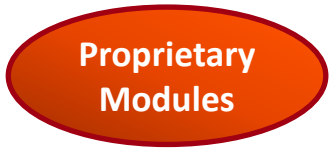
congatec

the rhythm of embedded computing

Abstract

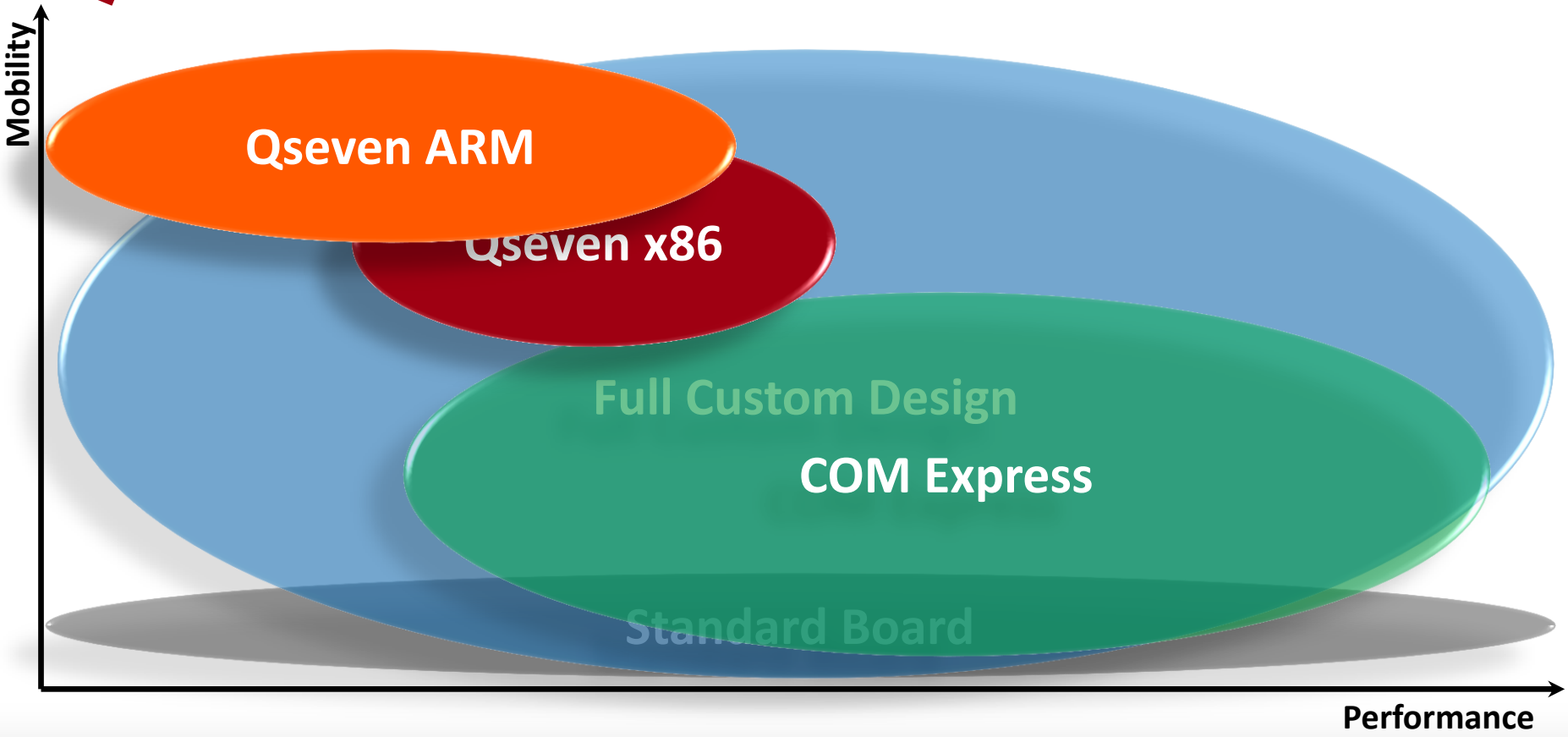
- The Qseven standard Revision 1.2, which was published back in September 2010, already prepared the ground for the early optimization of Qseven for dedicated ARM support.
- Now the Qseven standard will be guided by the SGET group to fulfill the upcoming demands. The Standardization Group for Embedded Technologies will be committed to developing and maintaining worldwide valid embedded computing specifications, in order to propel new embedded technology standardizations meeting the demands of the markets.

Qseven Positioning



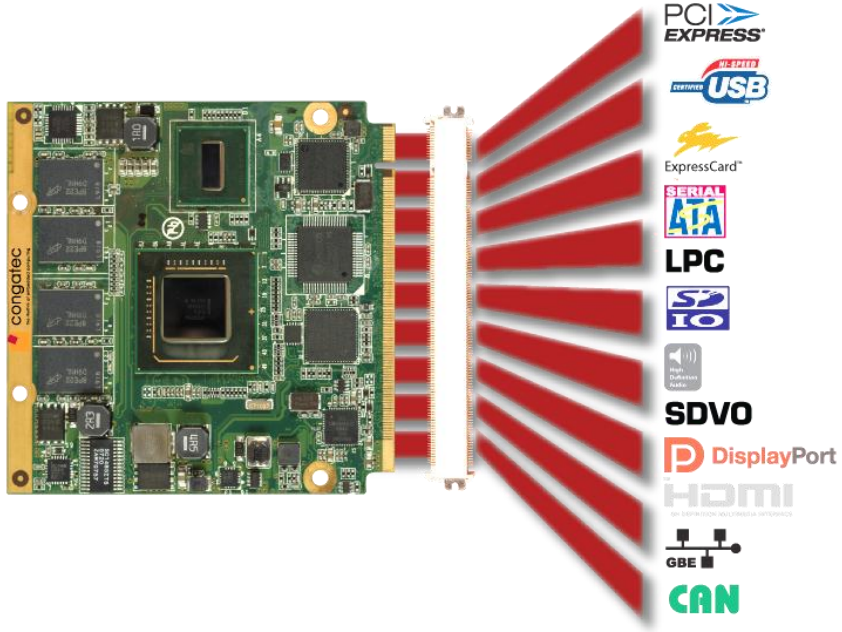
- **Proprietary Modules**
  - No standard feature set
  - Specialized for single project
  - No 2nd source
- **Small Module**
  - Open standard
  - Perfect feature set for X86 and ARM base processors
  - Lowest power consumption
- **Powerful Module**
  - Open standard
  - Based on X86 processors
  - Extreme scalable

Positioning Qseven / COM Express



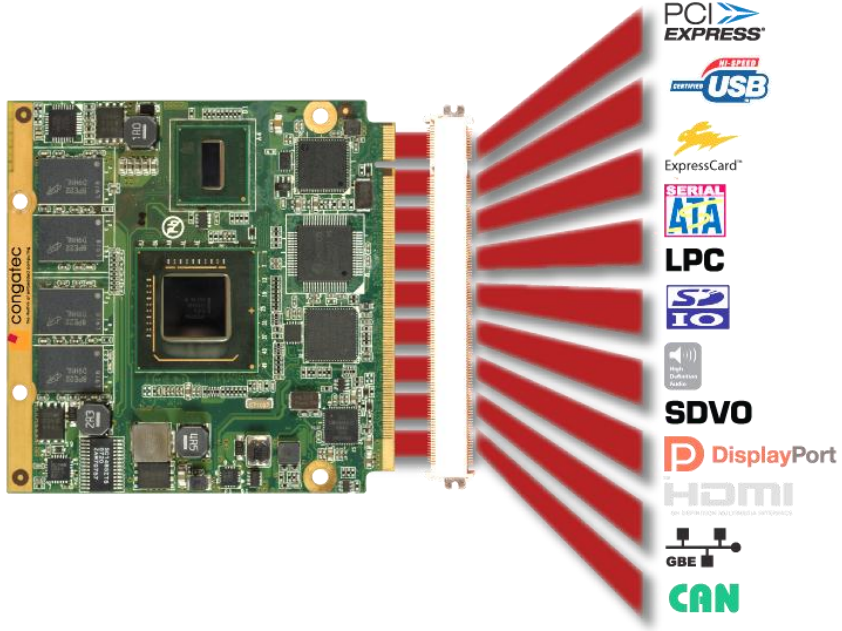
Reasons for Qseven

- **Trends**
  - Mobile applications
  - Long battery operation
  - Rich software applications
  - Flexible user interface
  - Multi functional
  - Improved usability
  - Shorter development cycles
  - Small size
  - Low power consumption
  - Wide OS support
  - Graphics performance
  - Touch operation
  - State of the art user interface
  - Module concepts



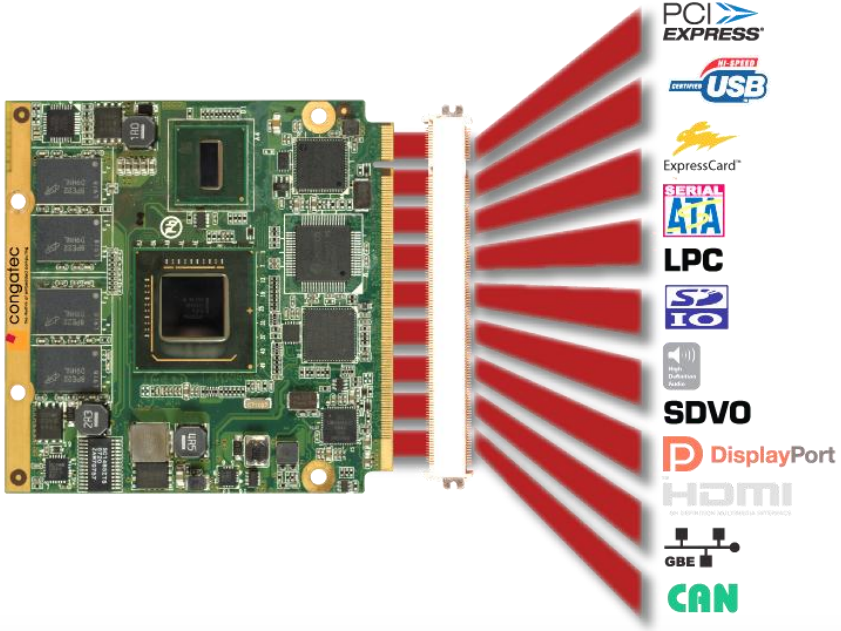
Qseven Specification

- **Legacy free interfaces only**
  - 4x PCI Express lanes
  - 2x SATA
  - 8x USB 2.0
  - SDIO, I²C Bus
  - Digital Audio
  - Gigabit Ethernet
- **Graphic Interfaces**
  - LVDS 2x24 Bit
  - DisplayPort and HDMI (shared)
- **Power**
  - 5V power rail for low cost implementation
  - Battery Management
  - Additional power management signals



Qseven

QSEVEN



x86 Intel® Atom™ Z500

ARM Freescale® i.MX6

x86 Intel® Atom™ E600

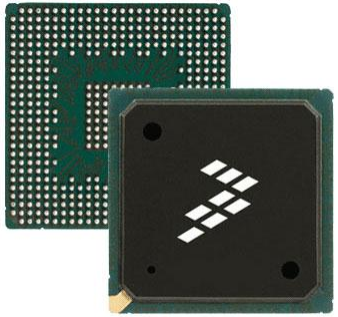
x86 AMD® Fusion

Qseven ARM Quad Core

- **QSEVEN with ARM Quad Core Processor**
  - Up to Freescale i.MX6 Quad ARM Cortex A9 with 1.2 GHz
  - Multimedia Performance with HDMI & LVDS interface
  - Extended Longevity up to 10 years
  - Industrial Temperature Option
  - Low Power Consumption

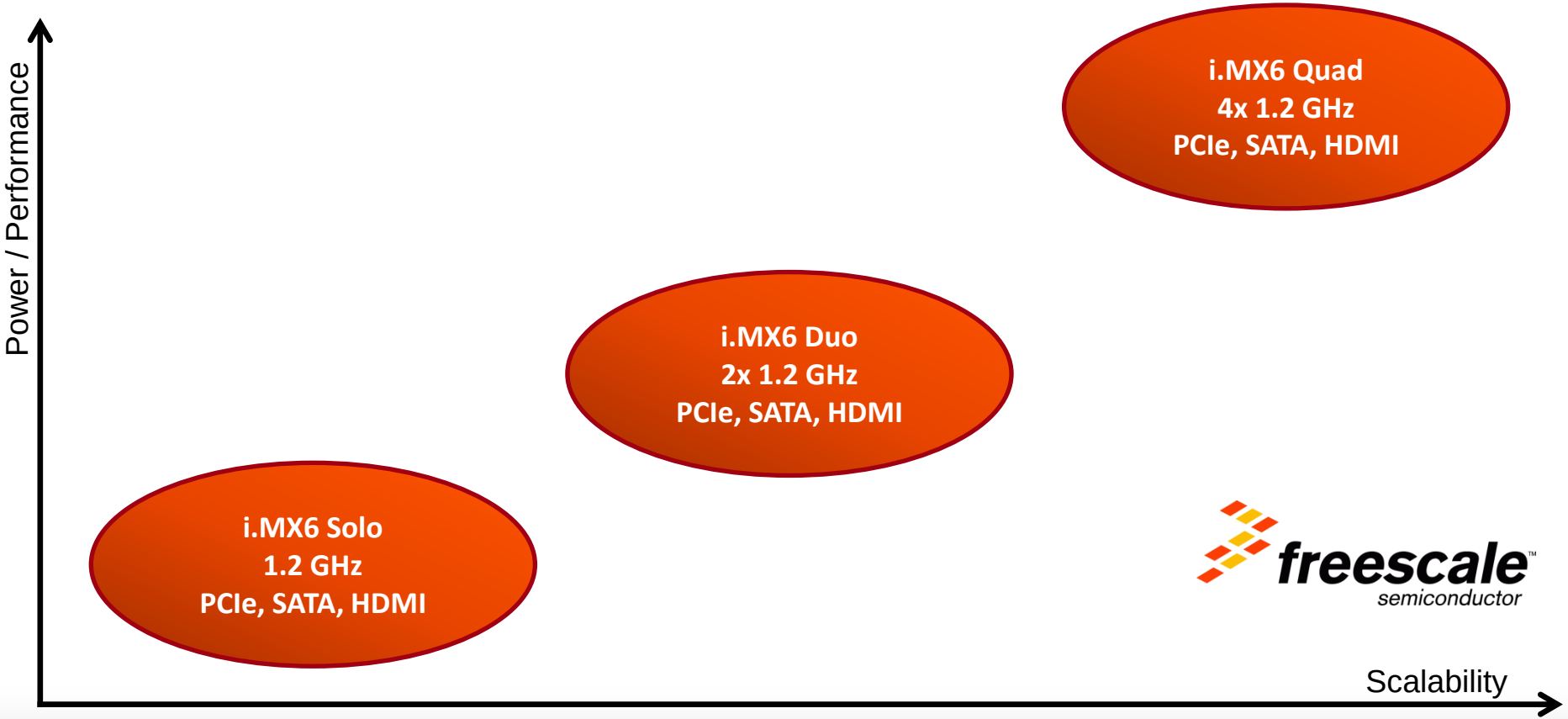
Product strategy expands with ARM

- **congatec extends it's product range with ARM architectures**
  - i.MX6 processors from Freescale™
  - Low power consumption
  - Rich I/O features
  - Software support
  - Perfect fit for Qseven
  - Power envelop



freescale™ semiconductor

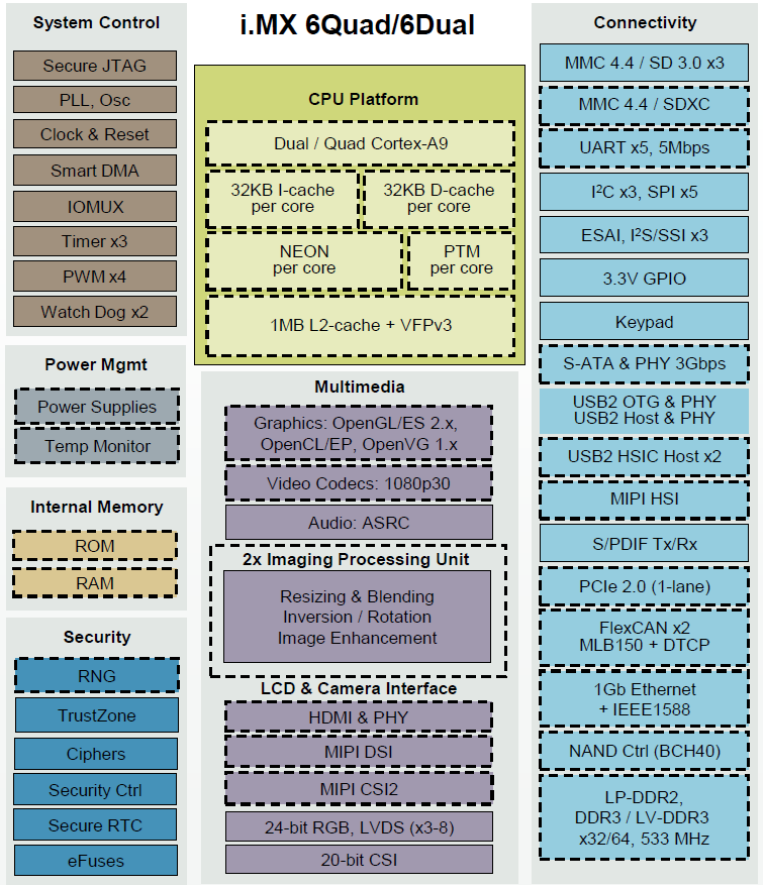
Scalable ARM Performance



freescale semiconductor

i.MX 6 series at a glance

- **ARM Cortex-A9 up to 1.2GHz Quad Core**
  - HD 1080p encode and decode
  - 3D video playback in high definition
  - Low power 1080p playback at 350mW
- **Integrated I/O**
  - PCI-Express Gen 2
  - 2x24bit LVDS
  - SATA II
  - 2x HDMI v1.4
  - MIPI CSI-2 Camera Interface
  - Gigabit Ethernet
  - USB 2.0
  - CAN
- **SW support: Google Android™, Windows® Embedded CE, Linux®**



New conga-QMX6 Qseven module

STANDARDIZATION
GROUP FOR
EMBEDDED
TECHNOLOGIES

What is the SGET e.V.?

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- Manufacturer-independent consortium
- Foundation announcement at Embedded World, Nuremberg, Feb 28, 2012. Inaugural meeting: March 15, 2012.
- Located in Munich.
- Registered German association (e.V. = eingetragener Verein)

SGET e.V. Aim

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- **Speed up the development of new standards for embedded hardware and software to accelerate customers time-to-market**
- **Far less bureaucracy than comparable organizations**

= Addresses the accelerated speed of technological progress and changing market demands needs.

SGET e.V. provides

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- Offers various workgroups on embedded computer technologies.
- Develops technical specifications, implementation guidelines, software interfaces as well as
- System requirements, which serve the purpose of energy efficiency, environmental protection and effectiveness of technology.
- Publishes such information and promotes its application for the benefit of the general public.
- Communication channels include the SGET e.V. website as well as blogs, newsletters and social networks.

The driving force

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- **Who is the driving force behind the SGET e.V.?**
  - Initiated by Advantech, congatec, Data Modul, Kontron, MSC and Seco and the publishers WEKA Fachmedien and Vogel Business Media.
  - 23 companies signed founding principles during the inaugural meeting.
  - Founding members are confident that more than one hundred ventures are going to join the group within a year.
  - Global reach.
  - Vendor independent.

Members

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V.

Working Groups

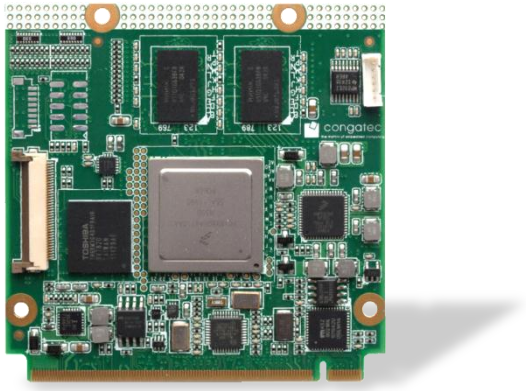
Membership

Workgroups in foundation

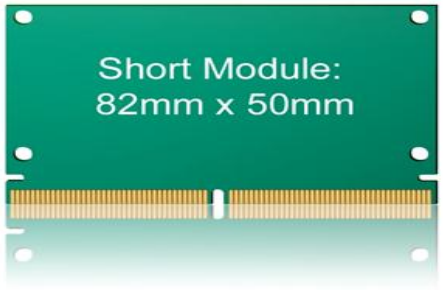
STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- Qseven



- ULP-COM



Workgroups in foundation

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- **First two workgroups going to be announced soon**
  - Qseven specification
  - ULP-COM
- **Simplified rules and shorter objection periods**
- **Download SGET e.V. statutes and objectives, working group regulations and voting rules (SDT Rules, Standard Development Team) at www.sget.org available**

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V.

Working Groups

Membership

You can influence these developments by joining the SGET e.V.

New Groups

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

- **Under the roof of SGET e.V. further groups are welcome to develop specifications!**
- **In addition to embedded computer manufacturers for boards and systems the invitation also extends to**
  - Chip manufacturers
  - Software developers
  - Connector manufacturers
  - Research and educational institutions
  - Embedded system integrators
  - OEM solution providers
  - Industrial users

Join SGET

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

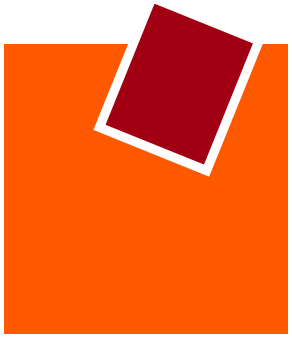
- **Apply for membership**
  - Fill the SGET e.V. General Membership Application Form
  - Member fees are 900 Euro per year.
    - This fees are used to cover the cost of the SGET e.V. organization.
  - Additional fees of 500 Euro per work group membership do apply.
    - This fees are available within the work group for specific work group activities (i.e. simulations, ...).

Contact

STANDARDIZATION GROUP FOR EMBEDDED TECHNOLOGIES

SGET e.V. | Working Groups | Membership

SGET e.V.
Grafinger Str. 26
D-81671 Munich, Germany
Tel. +49 (931) 418-3101
Fax +49 (931) 418-3093
info@sget.org
www.sget.org



congatec

the rhythm of embedded computing