Product Brief

AURIX™ TC38xQP

High-performance chassis, powertrain, body and autonomous driving microcontroller

Infineon releases its second generation AURIX™ microcontroller in embedded flash 40 nm technology. It comes back with an increase in performance, memory sizes, connectivity and more scalability to address the new automotive trends and challenges. This family has more than 20 products to provide the most scalable portfolio of safety microcontroller. In terms of performance, T38x offers 4 cores running at 300 MHz and up to 1.5 MBytes embedded RAM, and consuming below 2 W. Its mirrored embedded flash banks offers A/B swap capabilities.

Safety is the core know-how of Infineon, and all products provide safety mechanism (including but not limited to lock-step cores, LBIST, ECC RAM) to ensure a safety platform supporting ASIL-D ISO 26262. The TC38x has 2 lock-stepped cores and 2 non lock-stepped cores, providing up to 1350 DMIPS in ASIL-D and 1350 DMIPS in ASIL-B.

In terms of security, this product has an HSM compliant eVita full, ensuring the implementation of future proofed security measure. On top of this, it offers extensive connectivity with 12 CAN FD, 4 channels FlexRay, 24 LINs, 6 QSPI and new high-speed communicating interfaces such as Gbit Ethernet, which are critical to address new domain control and connected gateway ECUs.

The AURIX™ TC3xx family features a dedicated 8-bit standby mode controller, with its own voltage domain to, not only support low power modes, but also to perform certain operations such as analog measurements, CAN and LIN communication, RTC and basic processing while the rest of microcontroller is in standby.

Finally to ensure the scalability, the whole family shares its core architecture (TriCore™ based), allowing a maximum of software re-use, but also offers pin compatibility on two main packages (BGA-292 and BGA-516). The TC38x is upward compatible with the higher performance TC39x and downward compatible to TC37x, TC36x and TC33x. This product offers as well the capability to be coupled to either and ASIC or another TC38x through a dedicated high-speed interface (HSSL) in order to increase the performances of the ECU. The HSSL is an LVDS based interconnection with low latency and speed up to 320 Mbit/s.

www.infineon.com/aurix
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Block diagram

Product table

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Ordering code</th>
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<tbody>
<tr>
<td>SAK-TC387QP-160F300S</td>
<td>4x 300 MHz TriCore™, 10 MB Flash, 1.5 MB SRAM, 1 Gbit/s Ethernet, 12 CAN FD, eVita Full HSM, LFBGA-292</td>
<td>on request</td>
</tr>
<tr>
<td>SAK-TC389QP-160F300S</td>
<td>4x 300 MHz TriCore™, 10 MB Flash, 1.5 MB SRAM, 1 Gbit/s Ethernet, 12 CAN FD, eVita Full HSM, LFBGA-516</td>
<td>on request</td>
</tr>
<tr>
<td>KIT_A2G_TC389_S_TRB</td>
<td>Eval board: 4x 300 MHz TriCore™, 10 MB Flash, 1.5 MB SRAM, 1 Gbit/s Ethernet, 12 CAN FD, eVita Full HSM, LFBGA-516</td>
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<td>on request</td>
</tr>
<tr>
<td>KIT_A2G_TC387_TFT</td>
<td>Low cost kit: 4x 300 MHz TriCore™, 10 MB Flash, 1.5 MB SRAM, 1 Gbit/s Ethernet, 12 CAN FD, eVita Full HSM, LFBGA-292</td>
<td>on request</td>
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