



Ultra-low power graphics processor for wearable applications

Integrated solution brings significant processing capability to low power devices

Düsseldorf, Germany, 06 July, 2017 – Toshiba Electronics Europe (TEE) announced today that mass production has commenced for the latest addition to their line-up of ApP Lite™ application processors for IoT devices, including wearables. The compact TZ1201XBG graphics processor is based on a high-performance 32-bit ARM® Cortex®-M4F processor capable operating at 96MHz (up to 120MHz with Over Drive).

Combining the ARM® core with the on-board power management gives the TZ1201XBG an ultra-low power consumption of just 70µA/MHz in active mode. With a 350mAh battery and an always-on display this enables around one month between charges in second watch applications - and two months for minute watches

Incorporating 2.2MB of embedded high-speed SRAM, an advanced LCD controller and a total of four state-of-the-art 2D graphics engines, the TZ1201XBG offers class-leading graphics performance for wearable applications. Support for HVGA (480x320) at 30fps and QVGA (320x240) displays at up to 60fps is integrated into the fully-featured processor.

Embedded 2D graphics accelerators (GFX) provide a powerful platform for alpha-blending, drawing, rotating, texturing and resizing images as well as performing on-the-fly colour

conversion. The graphic accelerators together with a new optimized bus structure remove almost all of the load on the processor for graphic operations and contributes significantly to further power saving.

The high-precision analogue front-end (AFE) combines a 24-bit delta-sigma ADC, 12-bit ADC, 12-bit DAC and an LED DAC thereby supporting direct sensing. This offers significant space and power savings by enabling software filtering.

120 free GPIOs and integrated USB, UART, SPI and I2C interfaces support the use of external sensors and peripherals to monitor activity and movement.

The integrated audio interface for voice command and voice trigger processing, and the 2D graphics accelerators will contribute to bring higher levels of user experience to customers.

The stunning capabilities of the advanced TZ1201XBG graphics processor can be fully appreciated by viewing this video <https://youtu.be/lyBF8wdgLNl>

For further details about the TZ1201XBG graphic solutions please download the fact sheet [here](#).

Notes:

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About Toshiba Electronics Europe

[Toshiba Electronics Europe](#) (TEE) is the European electronic components business of [Toshiba Electronic Devices and Storage Corporation](#). TEE offers a broad IC and discrete product line including high-end memory, microcontrollers, ASICs and ASSPs for automotive, multimedia, industrial, telecoms and networking applications. The company also has a wide range of power semiconductor solutions as well as storage products including HDDs, SSDs, SD Cards and USB sticks.

TEE was formed in 1973 in Neuss, Germany, providing design, manufacturing, marketing and sales and now has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom. TEE employs approximately 300 people in Europe. Company president is Mr Akira Morinaga.

For more company information visit TEE's web site at www.toshiba.semicon-storage.com.

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July 2017

Ref. 6941/A