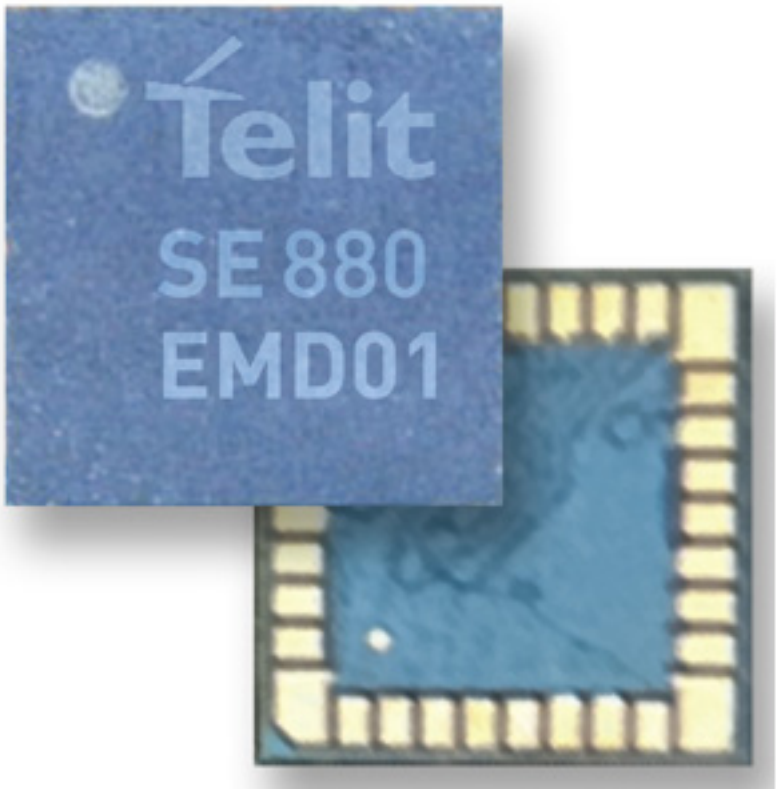
GPS miniature receiver based on latest 3-D embedded technology is market's smallest



Telit Wireless Solutions [1] announced the introduction of the Jupiter SE880 [2] ultra-compact GPS receiver module for applications in the commercial, industrial, and consumer segments including wearable and handheld devices. The miniature 4.7x4.7mm LGA (Land Grid Array), SiRFstarIV-based receiver module employs leading 3-D component embedding technology to achieve best-in-class performance in all dimensions critical for regular or size-constrained GPS applications. The SE880 receiver module was conceived to shorten Time-to-Market and to make the chipset-versus-module decision an easy one for device integrators. Integrators can attain a working SE880-based design in as little as a week versus several months when starting from a chipset reference design.

Telit's Jupiter SE880 [2] includes all components necessary for a fully functioning receiver design requiring only a 32 KHz external crystal for its time-base and TCXO to complete the design, along with antenna, power and data connections adequate to the integrator's needs. For advanced designs incorporating the supported Satellite Based Augmentation System (SBAS), ephemeris data collected from the satellites can be stored to SPI Flash memory instead of the more common and expensive alternative of the EEPROM - again reducing costs and improving the business case for the end-device.

Responsible for delivering the device's best-in-class sensitivity, the Jupiter SE880 [2]'s RF front-end is truly state of the art employing spatially calibrated waveguide-

quality radio paths inside the three-dimensional space of its architecture drastically reducing parasitic impedances characteristic of traditional 2-D RF designs. Inside, a multi-filter system includes not only the traditional SAW filters typical in GPS receiver designs but also a 2.4 GHz notch-filter capable of nullifying the jamming effects of high-energy radio devices such as Wi-Fi hot-spots, Bluetooth systems, cordless phones, and others, which greatly affect a GPS receiver's ability to resolve timid satellite signals in the hostile radio environment where they need to operate.

Jupiter SE880 [2] is a single-constellation GPS product enhanced for maximum sensitivity which makes it capable of class-unique achievements such as a one-satellite acquisition of UTC (typically 4 are required); fix acquisition with minimal sky-visibility – indoors, garages, urban canyons, etc.; and much lower TTFF under standard operating conditions (as much as 200 seconds quicker from cold start). In its micro-power stand-by mode, the SE880 draws a low 50 to 500 µAmps making it extremely battery-power friendly. Waking from this mode it can produce a first-fix in a few seconds when waking from a few hours of stand-by and still less than 10 seconds when waking from a full day of stand-by, making it ideal for wearable and personal digital device applications.

"The Jupiter SE880 [2] keeps with Telit's tradition of leading the industry in miniaturization – following in the footsteps of the most recent such record – the HE910, still the world's smallest 7-band HSPA+ module. Taking up less than 40mm² the footprint makes it the best GNSS platform for high-volume ultra-compact mobile/tracking applications and advanced consumer devices such as sports watches, cameras, tablets and others, where the SE880 becomes the only solution delivering stellar specifications from such a small package." said Dominikus Hierl, chief marketing officer at Telit Wireless Solutions. "Further, when you bundle the SE880 with a Telit cellular module you have the optimal Wireless+GPS solution in terms of total cost effectiveness, footprint, ease-of-integration, and time-to-market."

Other distinguishing features of the SE880 [2] include an extended operating temperature range wherein noise-versus-gain performance is linearly balanced throughout the range with class-leading sensitivity stability particularly at the extremes of -40 and +85°C - critical for applications such as sports watches and OEM automotive navigation systems. Six-Sigma quality assurance processes employed in producing the Jupiter SE880 significantly increase manufacturing yields for the integrator's end-product. That is due to a number of factors including the product's higher tolerance to satellite signal variances input to the SE880's RF front end (less than 1dB part to part variation versus a more typical tolerance range of 3dB); and other maladies introduced by the end-manufacturing process.

As industry's only pure-play m2m, Telit creates value by partnering with customers to provide expert guidance and support from concept development through to manufacturing quickly bringing ideas to market in all application areas including the new "smart" space. With service enhanced products in cellular, short-range, and satellite-navigation easily bundled through high-level software interfaces, Telit-powered m2m devices cost less to integrate, maintain, operate, and update with lower price points for bundled products and savings translating into competitive

advantage at the time of sale and throughout the operating life of the customer device.

www.telit.com [1]

www.m2mAIR.com [3]

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