Wireless Mesh Networking Systems

Smart Metering • Electric Meters • Gas Meters

• Home Area Network (HAN) Devices

ember

CHIPS · SOFTWARE · TOOLS

the ember story:

Ember develops wireless mesh networking technology—chips, software, tools—for Smart Energy, connected homes, as well as many other monitoring and control applications enabling comfortable, safer and greener living and work environments. Low power wireless sensor networks are making it possible for devices like thermostats, in-home displays, lights, switches, security sensors and utility meters and other every day things to communicate with each other and work cohesively. Ember's vision is to deliver wireless networking systems that have a profound impact on energy savings, while significantly improving the comfort and safety in people's living and working environments.

Ember offers the industry's most advanced, complete and integrated mesh networking platform—including chips, software and tools. As a result, Ember's ZigBee solutions comprise the most dominant and deployed platform globally. ZigBee is an open industry standard backed by a global alliance of about 400 companies delivering cost-effective, standards based wireless networking solutions that support low power operation, security and reliability.

Ember's mesh networking expertise and experience were established even before industry standards were created. Today, Ember is the acknowledged market leader helping an array of global OEMs develop ZigBee enabled products for Smart Energy, SMA, Home Automation and Building Automation applications. Ember's leadership stems from the following:

Quality of the Ember Team

The people in Ember are its biggest asset. Ember has assembled not just a world class team, but some of the people who have worked on the mesh networking technology since the time it was first conceived. Across the Atlantic, Ember's IC development team based in Cambridge, England is one of the world's top designers of low powered, embedded radios. We believe, the combined Ember software and hardware groups comprise the most skilled and experienced team, building low-power, wireless networking semiconductor systems, in the world.

Mature Technology

More than a decade of R&D and real-world experience helping customers around the world deploy millions of devices in the market has enabled Ember to finely tune its product offerings. The result is the most mature, robust, reliable and scalable ZigBee platforms.

Best-in-Class Products

Ember's solutions integrate high performance 2.4 GHz low power wireless semiconductors, the most reliable, scalable and advanced low power networking software, and best in class development tools. Ember's products have set the benchmark for product performance, and offer unmatched flexibility to OEMs developing ZigBee enabled products. Ember's 3rd generation semiconductors, 4th generation networking software, and industry leading development and debugging tools help deliver on the true promise of large, low-power networks. Also, Ember has partnered with ARM for its 3rd generation ICs which set a new benchmark in the industry for performance.

Customer Focus

Ember recognizes that success is contingent upon its customers' success. Ember delivers solutions that enable customers to focus their energies on developing applications, secure in the knowledge that they have a robust and reliable networking platform. This is backed up with a passionate and responsive customer support organization. As a result, Ember boasts a world class portfolio of market leaders in Smart Metering, SMA, Home Automation, Building Automation Systems and many other applications delivering Ember enabled products.

Commitment to Standards

Since its inception, Ember has been committed to open industry standards. Standards enable OEMs and end customers the long term benefits of multiple vendors supplying interoperable products. Ember's commitment is reflected by its contributions to the standards shaping the low power wireless market, including IEEE, ZigBee, IETF and IPSO Alliances. But beyond just being engaged in standards, Ember was a leader in bringing 802.15.4 and ZigBee out of the labs and into the real world. Ember was the first company with IEEE-compliant chips and ZigBee compliant software in volume production, with customers implementing commercial deployments. Ember is now actively engaged in and influencing the standards that will grow the market and extend communications and control capabilities out to the billions of devices, appliances and equipment in buildings and homes where most energy efficiency goals will be achieved.

There is significant momentum in Ember's focus markets. Low power, wireless mesh networking technology is ideally suited to address the urgent need for energy management and demand response, coupled with people's desire for more security, safety and comfort in buildings and homes. With a world class team, a mature and reliable technology, and best in class products, Ember is at the forefront and leading the "Internet of Things" market into the future.

the ember difference:

Chips

Ember's wireless ZigBee networking semiconductor systems are based on deep mesh networking expertise combined with years of experience and input from actual OEM deployments. Ember is already several generations deep into its family of semiconductor platforms. Ember's systems help companies create ZigBee-compliant wireless products significantly faster, easier and more profitably than other current offerings.

EM300 Series

World's first ARM Cortex-M3 based ZigBee system-on-chips

- **EM351** integrates a programmable ARM Cortex-M3 processor, IEEE 802.15.4 RF transceiver, 128 KB flash and 12 KB RAM
- **EM357** optimized for applications that require more memory has 192 KB flash
- Industry leading RF and CPU performance
- Large application code space
- Advanced power management and low power consumption

EM250

The world's most deployed ZigBee/802.15.4 system-on-a-chip

- Fully integrated, single chip solution with RF, baseband, microcontroller and memory
- Proven RF performance
- Excellent sensitivity for greater range
- Reliable co-existence for greater reliability in noisy environments
- Hardware MAC and AES128 encryption support

EM260

World's first ZigBee co-processor offers the most flexible path to ZigBee integration

- Provides all the key features, reliability and performance of the EM250
- Truly flexible network co-processor, that can be linked to any microcontroller via Ember's EZSP Interface – UART/SPI
- Ideal for OEMs that have standardized on a preferred MCU and want to port their applications to ZigBee quickly and easily

ZigBee Certified Software

From its years of customer experience Ember understands that OEMs don't want to become networking software experts. Ember's software shields them from the complexities of the protocol stack, allowing them to focus their efforts on what they do best… the application.

Ember's highly reliable, robust and mature networking stack is the most deployed ZigBee stack in the industry.

EmberZNet PRO

Industry's premier ZigBee certified networking stack supporting the ZigBee PRO Feature Set

Larger Networks scaling to potentially thousands of nodes in a single network is enabled by Stochastic Addressing, Many-to-One/Source Routing and Asymmetric Link Handling

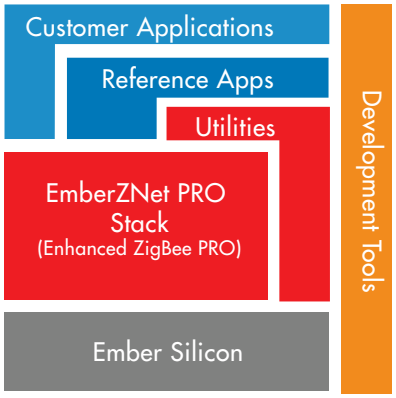
Denser Networks enabled by Ember's Intelligent Table Management that assures network stability even when many routing nodes are within close proximity

Sleepier Networks significantly extend the battery life of end devices through compatible Ember enhancements such as configurable deep-sleep timeouts and special ZigBee (ZR) router parent functions

More Mobile Networks Ember mobile support features explicitly identify and optimize mobile ZigBee End Devices (ZED) within the network

More Secure Networks are enabled by implementing many of the optional ZigBee PRO security extensions for advanced network encryption and device security

More Resilient Networks are ensured by ZigBee PRO's Frequency Agility features that allow the entire network to change channels in the face of interference



Tools

Ember's development tools suite comprises the proven Ember Development Kit and the InSight™ Development Environment which provides an array of first-of-their-kind software tools for rapidly developing and debugging ZigBee applications, including the InSight AppBuilder which helps developers in building ZigBee certifiable products extremely fast. The interface to the InSight Development Environment is the InSight Desktop.

InSight™ Desktop

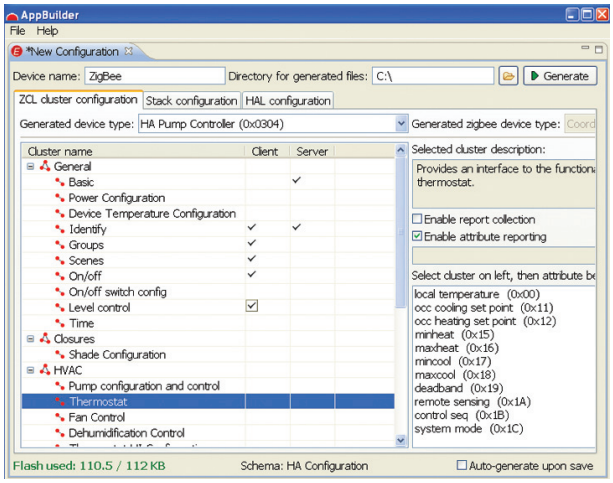
Industry's most reliable and feature-rich ZigBee-compliant networking tools

- Network Debug Environment
- Integrated network visualization and analysis tool tightly coupled to the EmberZNet stack
- Network wide time synchronized debug messages and API tracing
- Packet Trace: Real time non-intrusive record of transmitted and received packet from each node
- Binary upload and application management

Ember AppBuilder

Ease-to-use graphical tool provides fastest way to certifiable products using ZigBee standard public application profiles

- AppBuilder is part of the InSight Development Environment
- Automatically customizes EmberZNet PRO reference applications for of any number of specific ZigBee public application profile devices
- Support for ZigBee's standard Smart Energy and Home Automation profiles
- Provides a full range of ZigBee Cluster Library devices and commands
- Developers can easily add their own device-specific code into the resulting ZigBee certifiable template application
- Fast and easy development of products ready for ZigBee Certified Product testing against standard profiles



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