

# FocalPoint 40 Profile: Ember

## Contact Ember

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## Ember Summary

Ember Corporation is a privately held firm in Boston, Massachusetts, providing embedded networking software, chips, and remote management tools. Founded by MIT graduates, the company has secured approximately \$28 million in financing to date.

## Ember Offerings

Ember provides radio chips, embedded networking software, and networking tools for sensing and control applications. Customers are typically OEMs and systems integrators. Radio chips are enhanced with EmberNet® embedded network interface, management tools, and software. Ember helps companies deploy networks by enabling self-organizing "instant infrastructure" that makes adding, removing, or relocating nodes simpler. The solution has been developed to confront the limitations of traditional wireless network architectures, which left networks vulnerable to physical obstructions, radio interference, single points of failure, and bottlenecks. Ember's flagship solution, EmberNet, uses a decentralized, multi-hop mesh topology, where each node is in direct communication with its neighbors. As such, if a single node fails for any reason, messages are automatically routed through alternate paths.

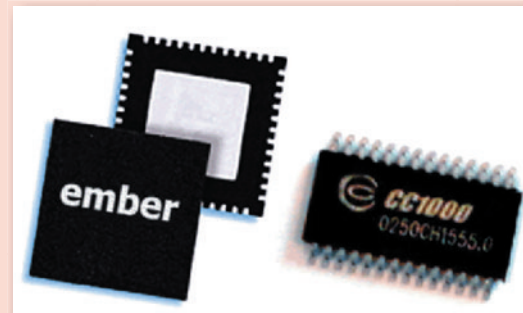
## Ember Differentiation

Ember markets solutions that are rugged, easy to deploy, and optimized for long-term unattended operation. Solutions provide seamless connectivity even in challenging RF environments. With no single point of failure, EmberNet networks promise reliability through built-in redundancy. Automatic handoff and efficient re-routing ensure a self-healing network that continues operation even if a node goes offline or a link becomes unreliable. Installation requires no disruption of wired networks and presents none of the limitations of other wireless solutions. Simultaneously, it reduces the wiring and labor costs associated with planning and deploying conventional sensing and control networks.

## Chipcon AS

### Case Study

Ember recently entered into a development partnership with Chipcon AS, a fabless semiconductor design and manufacturing



company. Together with Chipcon, Ember plans to address the growing Embedded RFIC (Radio Frequency Integrated Circuits) Marketplace. The partnership aims to produce a line of low power, highly integrated RFICs and SoCs (System on a Chip) from 300Mhz to 2.4Ghz, tailored for sensing and control applications across many markets. These chips have the ability to last up to five years, addressing the biggest hurdle for Ember – running power to remote assets. Also, by expanding expertise into the design and manufacture of RFICs and SoCs, Ember takes a step toward becoming a standard for embedded wireless networking. As a result, customers looking for 802.15.4 standards and Zigbee-ready products will receive low cost, low power embedded wireless networking in an integrated package. There are three key elements to winning in the LR WPAN space: low cost of acquisition, fault-tolerant network connectivity, and an easily integrated platform. This partnership has the potential to address customer expectations and succeed in all three areas.

## Ember Markets

Ember offers wireless networking technologies for sensing and control applications in building automation, defense, industrial automation, supply chain management, and power utility automation. Products are designed to capture and utilize data from points such as HVAC, lighting, refrigeration, battlefield monitoring, shipboard monitoring, temperature, pressure and flow level sensing and control, residential demand response, and power distribution diagnostics. EmberNet embedded networking software and development tools support multiple radios and microcontrollers. The software is accessible through a simple application programming interface, and is easily customized for both standards-based and customer-specific requirements. Ember's versatility in products and services makes the solution applicable for all companies across its primary sectors.

## FocalPoint Perspective

Ember is the very popular brainchild of two MIT Media Lab engineers, backed by some of the most serious venture funding in the M2M industry. Add to the equation that Ember's mesh networking is uniquely geared toward the requirements of M2M: low bandwidth, affordability, and flexibility – what more could you ask for? How about Bob Metcalfe on your board, early mover advantage, and one of the most established brands today? The stars definitely seem to be aligned for this startup. But this watershed means people expect a great deal from Ember. A chink in the armor is that, despite enabling wireless communication between company assets, no one has solved the power problem. The partnership with Chipcon and the promise of a five year battery life is a big step in the right direction. The big challenge will be whether the more traditional industrial settings warm up to wireless device enablement. We're confident Ember will play a role in making it happen.