Intel’s T3K family addresses the needs of the highest-performance small cell designs for single-mode (LTE) and dual-mode (3G and LTE) solutions for picocell, enterprise, and rural applications.

Intel® Transcede™ solutions deliver a complete small cell base station on a chip, supporting concurrent multi-standard operation with carrier-grade software performance (HSPA and LTE). Simplifying the migration from 3G to LTE networks, Transcede T3K (T2xxx) devices handle the complete signal flow from the radio interface to IP packets for network connectivity. The product suite builds upon the Transcede family of award-winning small cell system-on-chip (SoC) solutions.

The T3K family with 20 MHz channels and MIMO (2x2) supports either TD-LTE or LTE FDD. Pre-integrated and pre-verified software that supports 3GPP Release 8/9 and a roadmap to Release 10 (LTE-A) is included.

The T3120 and T3150 have the identical LTE capability as the T3100 and T3130, but also add simultaneous 3G operation to enable a single-chip, dual-mode solution. This is a super-set of Intel’s industry-leading PHY capability with support for Release 9 HSPA+, including MIMO, dual carrier, and soft handover, while meeting 3GPP LABS (Local Area Base Station) performance levels.

All four T3K devices are intended for carrier-grade, public access picocells and small cells. Each can support up to 32-128 simultaneous users as a complete solution, from RF interface to L1 and L2/L3 on a single device. All devices include carrier-grade, pre-integrated and pre-verified code for PHY and stacks.

The T3100 is ideal for in-building LTE-only solutions, while the T3130 and T3150 have longer range, support high mobility, and are optimized for metro cell or rural small cell use. They can also be used to upgrade a distributed antenna system (DAS) installation by adding local capacity and improving network efficiency and performance.

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**At a Glance**

- Optimized SoC solution for enterprise, rural, and picocell applications
- Single mode (LTE) and concurrent dual mode (3G and LTE)
- 3GPP Local Area Base Station specification
- 3GPP Release 8/9/10 (LTE-A)
- MIMO 2x2
- Channel bandwidths up to 20 MHz
- HSPA+ support for MIMO, dual carrier, and soft handover
- L1 and L2/L3 on a single device
- Carrier-class integrated software
The Transcede T3K family from Intel enables the highest-performing picocell, enterprise, and rural small cell products.

**Functional Description**

The Transcede T3K family was specifically designed for the next generation of high-performance small cell base stations. This is achieved through the use of ARM® Cortex® A9 technology for control and protocol processing, CEVA® DSP cores for baseband processing, and specialized MAP® DSP blocks for advanced signal processing and encryption functions. The single SoC design delivers a complete L1, L2, and L3 solution, which can dramatically reduce overall system cost.

The T3K family with integrated network processor capabilities supports Layer 2 processing requirements for the next wave of small cell designs. Network processing is performed by a high-performance ARM Cortex RISC processor with fast IP/Ethernet interfaces coupled with Metro Ethernet Forum (MEF) class of service hardware acceleration.

The devices are supplied with complete, pre-integrated, and pre-verified software solutions. They are available with a reference design kit, which provides optimized LTE and 3G software, and an extensible verification environment and board support package (BSP) using Linux®.

The high-performance processing and I/O of the T3K family is well-suited to “smart” small cells with integrated cache servers or multi-mode capabilities. USB and PCI Express® interfaces simplify the integration of additional features, such as Wi-Fi, and a CPRI interface is available to communicate with remote radio heads or distributed nodes.

The T3K family integrates industry-leading security, meeting or exceeding the requirements of 3GPP and Small Cell Forum. Backhaul security is provided by an integrated IPsec engine (AES, DES, and hashing), and air-interface security is provided by a RAN security engine that supports AES, Kasumi, SNOW-3G, and ZUC, along with the new modes in 3GPP releases. In addition, the T3K family implements secure boot and key management.

For more information about Intel solutions for communications infrastructure, visit [www.intel.com/communications](http://www.intel.com/communications)

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**Product Features**

- Single SoC design for complete L1, L2, and L3 solutions
- Intel carrier-class L1 LTE and 3G software support
- Quad ARM® Cortex® A9 Processor
- Quad CEVA® XC DSP
- Eight MAP DSP accelerator blocks
- Hardware accelerators (FEC, PRACH, PSC, and COR)
- Backhaul IPsec engine (AES, DES, and hashing)
- RAN security engine (AES, Kasumi, SNOW-3G, and ZUC)
- Integrated support for USB, PCI Express®, and CPRI
- Glueless connectivity to leading RF transceivers
- Secure boot and key management support

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**Product T3K Market Segment**

<table>
<thead>
<tr>
<th>Product</th>
<th>T3K Market Segment</th>
</tr>
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<tbody>
<tr>
<td>T3100</td>
<td>LTE Enterprise</td>
</tr>
<tr>
<td>T3130</td>
<td>LTE Pico</td>
</tr>
<tr>
<td>T3120</td>
<td>Dual-Mode Enterprise</td>
</tr>
<tr>
<td>T3150</td>
<td>Dual-Mode Pico</td>
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</tbody>
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1. Mindspeed Technologies, Inc., SK Telecom, and Contela won the Small Cell Industry Award for Commercial Deployment (Innovation in Commercial Deployment) at the 2012 Small Cell World Summit in London. The award is for the deployment of the world’s first data-only femtocell service designed to offload increasing mobile data traffic caused by the rapid growth of smartphones and tablets.

2. MAP is an abbreviation for multifunction application processor.

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