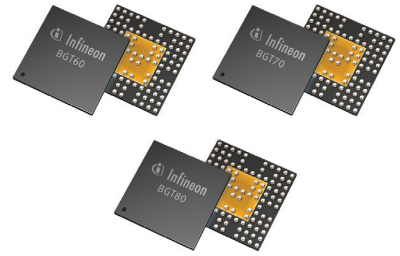


Single-Chip Millimeter-Wave Transceivers Target Small-Cell Backhaul

THE HETEROGENEOUS network (HetNet) of small cells promises faster download speeds and greater cellular capacity to handle the growing demands of smart-phone and tablet

users. One of the greatest challenges of building out such a network is backhaul, the connection from the small cell back to the carrier switching network. Wireless backhaul



The Infineon BGT60, BGT70, and BGT80 millimeter-wave RF front-end chips are designed for small-cell backhaul applications. The packaging is a plastic embedded wafer-level ball-grid array (eWLB) that's 6 by 6 mm.

appears to be a better solution than fiber for the complex mix of small-cell locations. Infineon's BGT60, BGT70, and BGT80 single-chip millimeter wave RF transceivers make this solution practical, smaller, and more affordable.

The transceivers cover the 57- to 64-GHz (V-band), 71- to 76-GHz (E-band), and 81- to 86-GHz (E-band) frequency ranges, respectively. Each chip is a complete silicon-germanium (SiGe) RF front end consisting of a low-noise amplifier (LNA), power amplifier (PA), mixers, programmable gain amplifier (PGA), voltage controlled oscillator (VCO), and related blocks (see the figure). The transceivers are direct conversion/zero IF types, so they connect via balanced I and Q connections to/from a base-band processor for the appropriate protocol. Channel tuning and TX/RX selection is made via an SPI port. The design is based on Infineon's experience with 24-GHz and 77-GHz auto radar chips. With appropriate standards, the chips can deliver the 1-Gbit/s data rates demanded of most small-cell designs.

Production on these chips has started. Samples and evaluation kits are expected in December.

[INFINEON TECHNOLOGIES.](http://www.infineon.com)

www.infineon.com

LOU FRENZEL