Datang Mobile taps ADI's high speed quad DACs for high performance, small form factor wireless base stations

Datang Mobile, one of China's largest telecommunication equipment manufacturers, designs and supplies advanced TD-SCDMA base stations that enable the high performance wireless networking needed to accommodate China's burgeoning 700M+ population of mobile users—the largest mobile market in the world. China Mobile has deployed over 100,000 of Datang's TD-SCDMA Phase IV base stations to date, which are particularly well suited for supporting high speed voice and data services in densely populated areas

4-Channel DAC—AD9148.

To achieve the optimal balance of system performance, integrated functionality, and density for its TD-SCDMA Phase IV base stations, Datang selected ADI's AD9148 digital-to-analog converters, the industry's first high speed quad DACs. The four-channel, 16-bit AD9148 DAC provides a 1000 MSPS (mega samples per second) sample rate and enables seamless support for multi-antenna wireless communications standards requiring the large bandwidths demanded by digital predistortion (DPD) transmit systems.

With the integration of four DACs within one 12 mm × 12 mm package, the AD9148 allowed Datang's design team to achieve aggressive form factor and system density goals for the TD-SCDMA Phase IV base station, at a fraction of the cost that otherwise would have been required to integrate four independent DACs. The space savings afforded by the AD9148 ultimately yielded a three-segment base station that accommodates eight transmit channels per segment in an ultracompact footprint.


Datang Phase IV Base Station—5116.

The AD9148's outputs are optimized to interface with ADI's ADL5372 analog quadrature modulators, designed for use from 1500 MHz to 2500 MHz, which provide the phase accuracy and amplitude balance that Datang's design team needed to enable high performance intermediate frequency (IF) modulation. Datang used a highly integrated clock part—the AD9523 with on-chip VCO and 14 low noise outputs, bipolar PLL structure, and low jitter performance. Datang was afforded a seamlessly integrated, multi-component ADI solution that enhanced overall system performance, minimized design complexity and system footprint, and helped accelerate time to market.

"ADI is a 'Core Supplier,' a designation Datang awarded to ADI in 2009. The advanced capabilities, technology integration, and cost savings that ADI brought to our TD-SCDMA base station design were invaluable. ADI's local sales team and technical support team provided us prompt and accurate support for our product development needs; they also worked with us closely and provided a perfect support platform for us to develop competitive TD-SCDMA base station products."

Wang Ce, Manager of Hardware Development Department, Datang Mobile