

Communication

Wireline and wireless communications converge

Our technology enables low-cost phones for emerging markets as well as high-end multimedia phones. Our VDSL2 solution sets record rates for data transmission. Infineon links wireline and wireless communication devices in the digital home.

Movement in communication technology

Strong demand for mobile phones in emerging markets was a positive trend in the past year. This was the main reason for the significant growth in units sold, from 520 million units in 2003 to 674 million in 2004; with the rest of the growth coming from consumers upgrading to the latest models. Prices for entry-level models continued to decline in 2005, and this trend is likely to continue in 2006. Low-cost mobile phones provide voice and text transmission functions without extra features such as games and cameras and their production costs are expected to fall below \$20 in 2006.

The mobile phone business is further characterized by the faster introduction of new product generations and the increasing integration of electronic components. Additional functions such as cameras and MP3 players are leading to increasingly complex chips. However, due to rapidly decreasing costs, we expect the global mobile phone market to be flat or even decline in terms of revenues in 2006.

In wireline communications, we view the convergence of voice, data, and TV data networks as an overriding development with a wide range of effects. Voice over Internet Protocol (VoIP) allows the transmission of spoken words as digital packets via a computer network, rather than via an analog telephone line. In new hotels, universities, or company buildings, such as our own Campeon headquarters, analog telephone lines are therefore in fact no longer installed. Moreover, telecommunications companies are expected to upgrade existing voice networks with data networks based on Internet Protocol in the future, thereby realizing significant savings.

... People at Infineon, p. 33

VDSL2 is now seen as the most capable transmission standard for the distance of the "last mile" over the copper wires to the customer, following on from ISDN, ADSL, ADSL2, ADSL2+ and VDSL. With a bandwidth of up to 100 megabits per second, VDSL2 enables triple-play, combining the transmission of several television channels in HDTV quality, voice transmission, and a high-speed Internet connection. In the home, too, we see continuous de-

velopment in connecting consumer electronic devices, by wireline or by wireless. Home gateway solutions operate as integrated access points, combining voice, video, and data services, and work as routers to set up and control home networks.

The right product for every trend

As communication technology specialists, we support all of the world's major mobile phone standards, including GSM, GPRS, EDGE, and UMTS. Telephone manufacturers are concentrating more and more on features and functions, product variety and design, and therefore increasingly purchase complete system platforms from chip suppliers. We have accordingly moved forward in our software and system development, and are today offering platform solutions for all market segments (→ **Reference platforms ULC** and **MP-E**). For low-cost telephones, we have developed the Ultra-Low-Cost (ULC) platform with the → **E-GOLDradio** one-chip solution, which integrates baseband and high-frequency transceivers into one chip using CMOS technology.

For the mid-market segment, we have integrated the most popular multimedia applications into our baseband chips; our S-GOLD2 is a first example of this new generation. We are also developing the relevant software for these chips, such as EDGE and UMTS protocols, and have designed APOXI, a platform for application software. We also design software for smart phones that ensures the compatibility of our baseband chips with the most common application processors which are not developed by Infineon itself.

... Letter to the shareholders, p. 4

In the field of wireless communications, Infineon has played a leading role in the transition of high-frequency transceivers from BiCMOS to CMOS production technology. Infineon has introduced SMARTi SD in high production volumes to the market, the world's first single-chip CMOS transceiver for GSM and GPRS, followed by → **SMARTi PM** for EDGE and → **SMARTi 3G** for UMTS.

As the global market and technology leader for high-frequency transceivers, we are now focusing intensively on connectivity solutions, combining a variety of radio frequency standards, including WLAN, GPS, Bluetooth, and DECT into one device, or even onto a single chip. Infineon is also a leader in the production of chips for digital television tuners, and is now playing a major role in launching digital terrestrial television DVB-T (Digital Video Broadcast-Terrestrial) (→ **DVB-T tuners**). In Korea, the first country in the world to adopt this service, mobile phones can even be used to watch television. The first phones that contain Infineon's tuners are now available there.

At high speed along the last mile

We are enjoying success with our chips for digital voice transmission in computer networks (Voice over IP). The excellent quality of our DSL access technology products (→ **GEMINAX Pro**, → **VINAX**) secures competitive advantages in power consumption and DSL line performance. Infineon is one of the few companies serving both ends of the communications network – from the central office to the individual customer. We produce, for example, the complete xDSL access technology for applications, including broadband in the home and digital home networking. We also provide complete broadband communications solutions for customer-premises equipment. Our customers can in addition choose from a comprehensive range of conventional products for analog telephone connections, ISDN connections, and T/E carriers.

Research and development and joint ventures

A key activity is the further development of our process technology. To secure competitive advantage at low cost, we have entered into partnerships with consortia and companies such as IBM, Chartered Semiconductor Manufacturing, and Samsung. Currently, our 130-nanometer technology is running in volume production, we are launching several products in the 90-nanometer technology, and the qualification phase has begun for the 65-nanometer technology. We have also started development of the 45-nanometer process.

Infineon innovations

Reference platform ULC

Telephones based on the reference platform for low-end GSM/GPRS mobile phones have less than 100 components, with the electronics required by the system needing just 9 cm². High-end telephones, by contrast, require over 200 components and around 30 cm² of circuit board area. Using the E-GOLDradio as baseband chip, the ULC platform supports voice telephony, SMS, and a color display. In the future, this will make it possible to manufacture telephones for under \$20.

Reference platform MP-E

Our reference platform for GSM/GPRS/EDGE multimedia mobile phones in the mid-price range is based on the S-GOLD2. MP-E supports all usual frequency ranges, a camera, polyphonic ring tones, and a color display. These platforms are sought by mobile phone manufacturers looking for complete single-provider solutions.

E-GOLDradio

Combines a quad-band high-frequency transceiver and a baseband processor in a single chip. This makes it the world's first and most highly integrated monolithic one-chip solution for the two most important mobile phone components. It is designed for low- and mid-priced GSM/GPRS mobile phones.

SMARTi PM

The world's first CMOS-based radio frequency transceiver for the EDGE standard.

SMARTi 3G

The world's first radio frequency transceiver to support all six 3G-standard frequencies. It can therefore be used in all UMTS telephones throughout the world. A further advantage: It is manufactured with power-saving and cost-efficient CMOS technology, too.

DVB-T tuners

Tuner ICs make it possible to receive terrestrial digital television signals. They are used by manufacturers of television receivers and set-top boxes.

GEMINAX Pro

Energy use, packing density, and line card system costs are all of the greatest importance in the central offices of network providers. GEMINAX Pro has set benchmarks for the ADSL2+ standard.

VINAX

This chip supports the full VDSL2 specification, thereby permitting the industry's greatest transmission range at a data rate of 100 megabits per second. It can be used in applications for both central offices and individual customers, and is one of the most complex chips ever developed at Infineon.