Wireless

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Increased TI silicon content:
- Higher performance 3G modems
- Multimedia demands OMAP™ processor performance
- More connectivity – Digital TV, Wi-Fi, A-GPS, Bluetooth®
TI Increases Market Share in Wireless ICs

Source: iSuppli
3G is Emerging Growth Engine

>50% of 3G phones use TI OMAP™ application processors or modem DSPs, or both
- 6 of top 7 OEMs

>60 TI-based 3G handsets shipping today

All FOMA OEMs use OMAP processors today
TI Technology is Making Wireless

#1 in Digital Basebands

2.5G & 3G Modems

#1 in Applications Processors

OMAP Application Processors

#1 in Wi-Fi for Handsets/PDAs

Bluetooth and Wi-Fi Connectivity

Source: Forward Concepts, iSuppli, TI estimate

#1 in Wireless Semiconductors
Innovating for the Future

Digital RF Processor™ (DRP™) Delivers Power, Cost, Area Savings

- Enables integration of major cell phone functions, increases TI silicon content
- Improves design of multiple-radio architectures
- Significant digital RF intellectual property
- Single-chip, DRP-based products:
  - GSM/GPRS cell phone sampling now
  - Bluetooth, mobile Wi-Fi, mobile digital TV, EDGE, UMTS and more

TI Well Positioned Beyond 3G with OFDM Expertise

- Active in 3rd Generation Partnership Project (3GPP) and IEEE for 3.9G, 4G standards development, likely to be OFDM-based
- Over two decades of OFDM experience
  - 802.11 and DSL OFDM-based systems in production today
  - Mobile digital TV and UWB OFDM-based systems in development
- Expertise in key OFDM areas including RF, baseband and MAC
Advanced Process Technology at the Core of TI Advantage

- Leading the wireless industry with 90nm production
- First company to sample 65nm wireless devices

Enables:
- SoC integration – analog and digital
- Design flexibility and optimization
- High performance in smaller, more power-efficient chip
**TI Delivers on Market Trends**

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Trend 1: Opportunities at High End and Low End

Market Segmentation Continues: One Size Does Not Fit All

- **Voice Phone** < $100
- **Feature Phone** $100 - $300
- **Smartphone** > $300

2008 Handset Segments (units)

Source: Nomura, Arthur D. Little analysis

Solutions For All Market Segments:

- **OMAP 2** application processors
- **OMAP-DM** imaging processors
- **OMAP-Vox** integrated modem and application solutions

Software re-use for easy migration across market segments and standards
Trend 2: Low-Cost Handsets Enable Growth in Emerging Markets

Market Trend

High Growth in Emerging Markets

- China: 26%
- Undeveloped Asia/ME: 36%
- Eastern Europe: 66%
- South America: 59%
- India: 98%

vs. Industry Growth: 23%

Source: Forward Concepts, April 2005

Single-Chip Cell Phone Solution for Low-Cost Handsets

- GSM Association Initiative
  - Handset cost biggest barrier for emerging markets
  - Targets $40 handset, going to $30
  - Estimated initial shipments of 6M per year growing to >100M per year

- DRP technology enables single-chip integration
- Selected by Nokia for cost-effective, advanced handsets

Handset Shipments 2004 2008
Trend 3: Additional Connectivity in the Handset

Wi-Fi and Bluetooth Penetration Continues to Increase

Source: In-Stat, Nov 2004; Wi-Fi Inside, Aug 2004; IDC, Dec 2004
Trend 4: Mobile Digital TV Gains Momentum

Digital TV Goes Mobile

- 40-60% of handset users interested in mobile DTV services; expect $10-15 monthly service fee per user (Source: IPDC Forum/HPI Research, DigiTAG)

- U.S. users expected to spend $30B annually on mobile TV services (Source: DigiTAG)

- DVB-H prototype handsets available from Samsung, Nokia, Siemens

- DVB-H trials underway in U.S., Europe, Australia; ISDB-T trials this year in Japan

TI Delivers

- Hollywood digital TV chip
  - 3 chips become 1 using DRP
  - Receives and processes TV signals
  - Outputs video to OMAP processor

- OMAP processor
  - High-quality image processing
  - Outputs image to display

- TI supports open standards
  - DVB-H for U.S. and Europe
  - ISDB-T for Japan
  - DMB for Korea

Open Solutions for Live Digital TV on a Handset
Most Complete Wireless Portfolio

Mobile Connectivity
- Wi-Fi
- Bluetooth
- A-GPS
- Digital TV
- RFID
- UWB

Applications
- HLOS
- Audio
- Imaging
- Security
- Games

OMAP Application Processors
OMAP-Vox Solutions
Reference Designs

Additional TI Capabilities

Cellular Standards
- GSM
- GPRS
- EDGE
- UMTS
- HSDPA
- OFDM

Applications Cellular Standards
TI Wireless in 2005

- Keep winning in 3G
- Extend leadership position in low-end handsets
- Continue “beyond 3G” development and standards involvement
- Increase TI $ content
  - More complex 3G modems
  - DRP technology
  - Connectivity technologies (Bluetooth, mobile Wi-Fi, GPS)
  - OMAP application processors
- Ramp 65nm