'C6000: The World's Highest Performance DSP Platform

Henry Wiechman
## 'C6000 Strategic Marketing Manager

TEXAS INSTRUMENTS
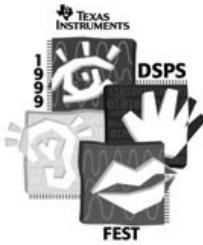
Today's Agenda

◆ Market Acceptance continues to grow

◆ Broad Range of Code Compatible Options

  ■ Floating point adds low-cost options

  ■ Fixed point adds peripheral options

  ■ Power and package size reductions enhance offering

◆ World's Best Development Environment

  ■ Compiler enhancements reduce code size

  ■ EVM bundles ease development

  ■ New DSKs offer low-cost evaluation platforms

◆ Technology Demonstration Kits highlight performance

◆ Advanced Data Converter/Power Management Solutions complete your design

TEXAS INSTRUMENTS
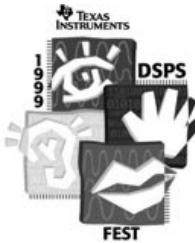
Market Shows Strong Acceptance of TI's TMS320C6000 DSP

- **Over $1B of design ins** (business over the next 3-5 years)

- **Thousands of developers** to date as measured by tool shipments

- **Hundreds of third party products**

- **The industry's only code and pin compatible fixed and floating point DSPs** offer broad price/performance options
  - $25 to 2400 MIPS fixed-point
  - $20 to 1 GFLOPS floating-point
  - Roadmap to over 5000 MIPS/3 GFLOPS

- **Industry's best development environment**
  - Code Composer Studio reduces development time
  - C compiler offers up to 5x the cycle count efficiency of competing solutions

8/19/99

TEXAS INSTRUMENTS

Applications demanding fixed- or floating-point raw performance

Wireless

- Base station transceiver
- Smart antenna
- WLL base station
- Wireless LAN

Datacom/Network

- xDSL modem
- T1 RAS modem
- Encryption
- Packet processing
- Enterprise PBX

Telecom/Wireline

- Voice mail
- Speech recognition
- Text-to-speech
- Enterprise voice gateway
- Multichannel line echo cancellation

Graphics/Imaging

- Image transmission
- Pattern recognition
- Image enhancement
- Security identification
- Video conferencing
- Radar/Sonar

Medical

- Ultrasound equipment
- CAT scan
- MRI
- 3-D x-ray

Industrial

- Robotics
- Security access
- Visual inspection
- Process/distributive control
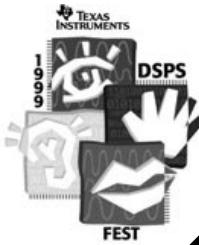
TI Building Floating Point Momentum

◆ **1GFLOPS 'C6701 now in volume production**

  ■ Hundreds of 'C67x EVM bundles shipped

◆ **C6711 simulator now available**

  ■ Samples of 'C6711 scheduled for December '99

  ■ DSK planned for 1Q00

◆ **Additional derivatives under development**

TEXAS INSTRUMENTS

'C62x Offers Broad Range of High Performance Options

◆ 'C6201 in volume production today

  ■ Thousands of 'C62x EVM bundles shipped

◆ 'C6202 now sampling in 27 and 18mm packages

  ■ Volume production (TMS) scheduled for 9/30

  ■ 0.15um version scheduled to sample 2Q00

◆ 'C6211 now sampling

  ■ 'C6211 DSK production scheduled for September

◆ 'C6203 scheduled to sample December '99

  ■ World's fastest and most integrated DSP

◆ New derivatives in 4Q99 expand peripheral options

TEXAS INSTRUMENTS

Performance Leader Slashes Power Consumption and Package Size

◆ Compared to the original 'C6201, the newest 'C6000 devices feature:

- 80% Lower Power Consumption
- 75% Smaller Package

Power

Package Size
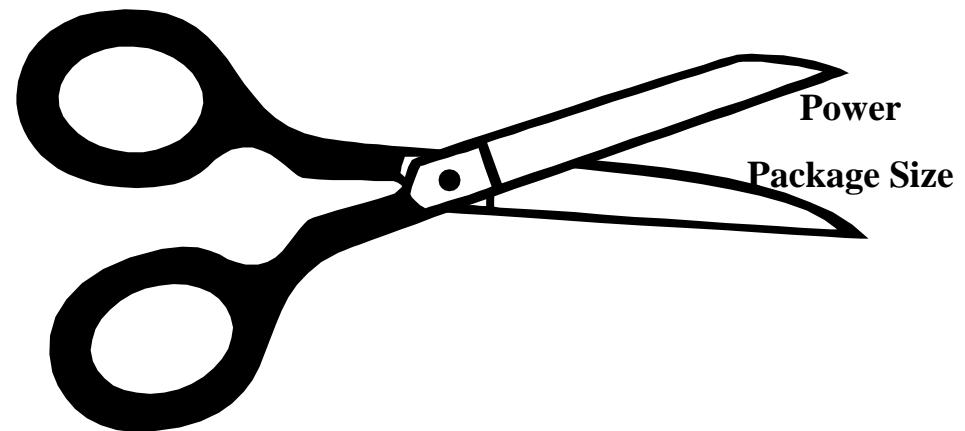
'C6000 Full Chip Power Drops To 1W

	CPU Power (mA/MIPS)	Total Power (W)
'C6201B	0.15	1.7
'C6203	0.09	1.1
'C6701	0.22	1.8

◆ 'C62x CPU consumes only 0.09mA/MIPS at 1.5V

◆ Full chip dissipation down to ~1W at 1.5V

- ■ 'C6203 samples in 4Q99
- ■ Sub 1W devices are coming
- ■ Continued design/process improvements
- ■ New voltage levels

TEXAS INSTRUMENTS
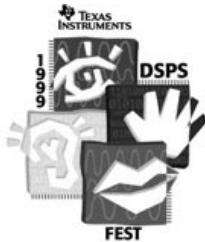
Code Composer Studio

◆ **Integrated Development Environment (IDE)**

- Integrates features for every stage of the development cycle

◆ **DSP/BIOS Enables Real-time Analysis**

- View data without halting the processor

- Immediately identify problems

◆ **Advanced Data Visualization**

- View DSP target signals & data as images

- Gain an intuitive understanding of the system and its characteristics

◆ **Integrate Third-Party Tools**

- Extend the environment to match growing needs
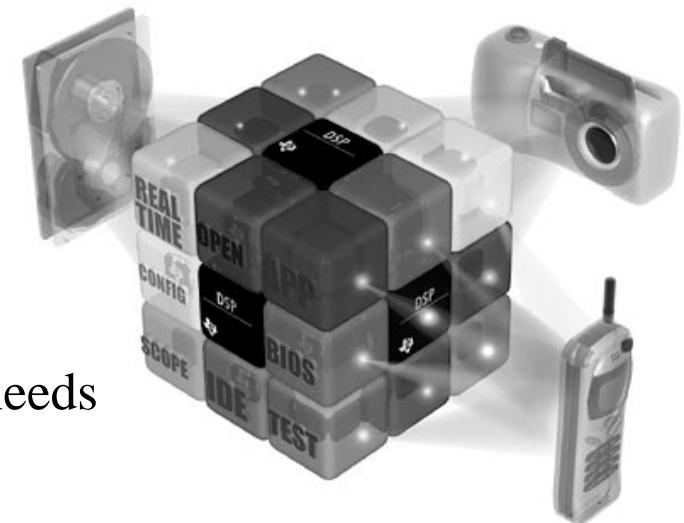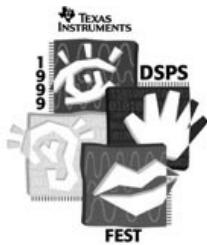
C6000 EVMs Speed Development

'C62x Fixed Point EVM
  EVM bundle price $1995
  EVM price $995

'C67x Floating Point EVM
  EVM bundle price $2495
  EVM price $1495

'C62x Multi-Channel EVM
  EVM bundle price $3995

TEXAS INSTRUMENTS
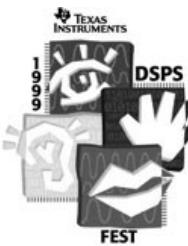
'C6211-DSP Starter Kit (DSK) - $195

◆ **Hardware**

- 150 MHz 'C6211 DSP based board ('C6711 version planned for 1Q00)
- AD535- 16-bit A/D Converter
- 4 Mbytes SDRAM
- 128 Kbytes Flash ROM
- Power Supply Universal (CE Compliant)
- Parallel Port Cable

◆ **Software**

- Code Generation Tools
  - ◆ C Compiler, Assembler & Linker
- Code Composer Debugger
- Example Programs & S/W Utilities

◆ **On-Line Documentation**
(shrink wrapped with CD ROM)
- License Agreement
- Installation instructions

xx/xx/99

TEXAS INSTRUMENTS
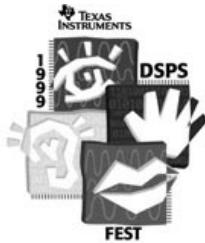
'C6000 Technology Demonstration Kits (TDKs)

◆ Primary purpose is to demonstrate C6000 capabilities in various applications

◆ Demonstration algorithms not fully optimized to showcase fast-time-to-market with minimal effort

◆ Application notes discuss relevant code development issues

◆ Object code versions available on the internet for TI hardware platforms

◆ Third party involvement encouraged

TEXAS INSTRUMENTS

'C6000 Means Code Compatible Performance Leadership Today and in the Future

◆ **World's broadest offering of high performance DSPs**

- Code compatible fixed and floating point devices available today in volume production

- Six announced devices with more to come

- New devices consume 80% less power in a 75% smaller package

◆ **World's most complete DSP development environment**

- Code Composer Studio

- Industry's most efficient C compiler

◆ **Complete hardware/software solutions available today**

- Numerous third party products

- TI TDKs

- TI high speed data converter and sophisticated power management products

TEXAS INSTRUMENTS