



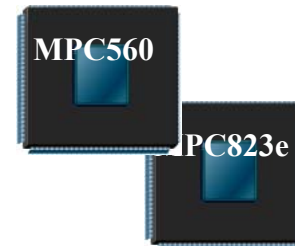
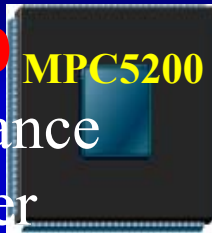
Customer Presentation

Over 90% of TCU's Shipped are Based on a Freescale Processor

(Source: Telematics Research Group)

Introducing the MPC5200

- Hi Integration/Hi Performance
- Extended Temp/Low Power
- Long Term Availability



mobileGT: What is it?

Cooperative alliance of key automotive software vendors providing integrated and proven support on the MPC5200-based mobileGT platforms.

- Real Time Operating Systems
- Java Virtual Machines
- Voice Recognition Engines
- Acoustic Echo Cancellation Technologies
- Wireless Communications
- Graphical Interface Technologies
- Navigation software



mobileGT Total5200 Platform

Minimal time configuring key software on an I/O and resource rich platform . This enables:

- Rapid realization of prototypes and field trial units (weeks instead months)
- Easy connection to automotive networks including MOST, CAN and J1850 with on-chip and on-platform technologies
- Well-proven connectivity to key enabling hardware technologies including GPS, cellular, Bluetooth, WLAN and 3D graphics
- One-stop support for the processor, development platform and software including access and support of Freescale developed software I/O drivers

MPC5200/mobileGT: What software is supported?

mobileGT Total5200

Real Time Operating Systems

- QNX
- Green Hills INTEGRITY
- Metrowerks Linux
- IBM Web Sphere J9

Voice Recognition/Text to Speech/AEC

- Clarity
- Fonix
- IBM Embedded Via Voice
- ScanSoft VoCon3200
- SpeechWorks Speechify Solo
- Wavemakers

Graphics

- eGENUITY
- Tilcon

Navigation

- Navigon, etc.



Wireless

- Airbiquity
- Extended Systems, StoneStreet One

Lite5200 EVB

Real Time Operating Systems

- ARC
- QNX
- Green Hills INTEGRITY
- Metrowerks Linux
- Metrowerks OSEKturbo
- MontaVista Linux
- Wind River VxWorks



mobileGT: What Can You Design With It?

- Hands Free Phone Systems
- Navigation Systems
- Driver Information Systems
- Camera-Based Designs (Lane Departure Warning, Occupant Detection)
- Radio/Handsfree/Navigation Hybrids
- Telematics Control Units
- Asset Tracking Modules
- Instrumentation Cluster Control
- Automotive Diagnostic Systems

PowerPC5200 Processor: The Heart of mobile*GT*

**PowerPC
603e
with FPU
@400 MHz**

- 272 Pins
- ~ 1 Watt
- Low Cost
- 760 MIPs w/FPU
- Long Term Avail.

USB
Master 1.1
(two)

PCI
ATA

DDR/SDR
SDRAM Ctl.

BestComm/DMA I/O Controller

PSC
(six)

**10/100
BaseT**

CAN
(two)

SPI

AC97
(PSC)

I²C
(two)

I²S
(3 on PSC)

J1850

PowerPC5200 Block Diagram

Features

- 603e series PowerPC® Core
 - 16K Instruction and 16K Data Caches
 - Dual 32 Entry MMUs
- High Speed DDR SDRAM interface
 - 256Mbyte addressing range, 32-bit wide
- Flexible multi-function external bus
 - PCI master v2.2, ATA v4 compatibility
- BestComm I/O subsystem
 - Support for PSC, Ethernet, USB 1.1, PCI, ATA, I²C, AC97 & CODEC Interfaces, SPI, CAN
 - 16kB internal SDRAM
- 6 Peripheral Serial Controllers Configurable as
 - UART, AC97 & CODEC Interfaces, I²S
 - 8 Counter/Timers
- BDLC-D J1850
- Superior I/O for Industrial Automation and Automotive Applications
 - CAN, Serial, USB, J1850 (MOST® on Total5200 Development Board)

Power Management

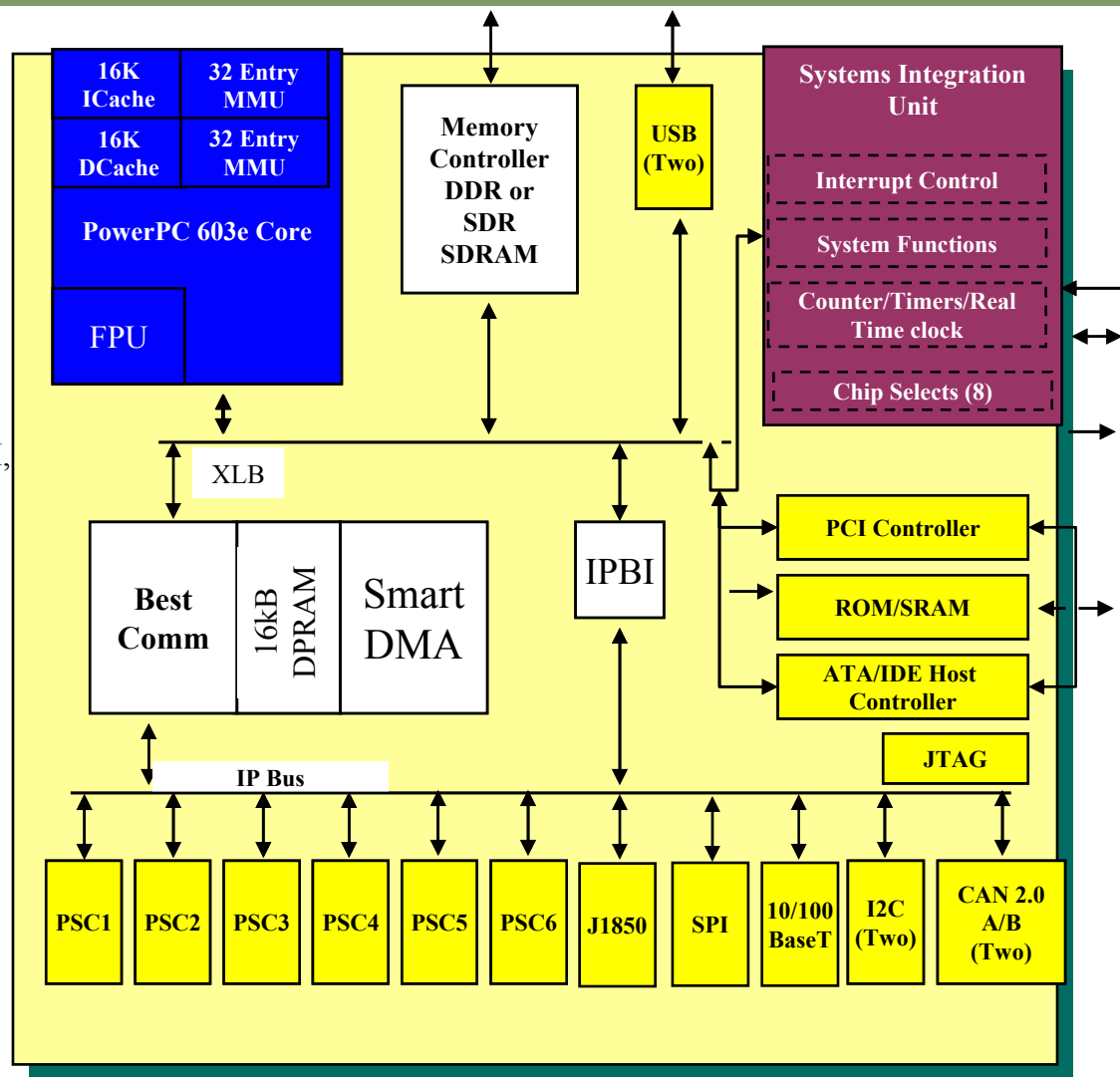
- Sleep and deep sleep modes. ~ 1W @ 400 MHz

Performance:

- ~ 760MIPS (400MHz) at -40° C to 85 C

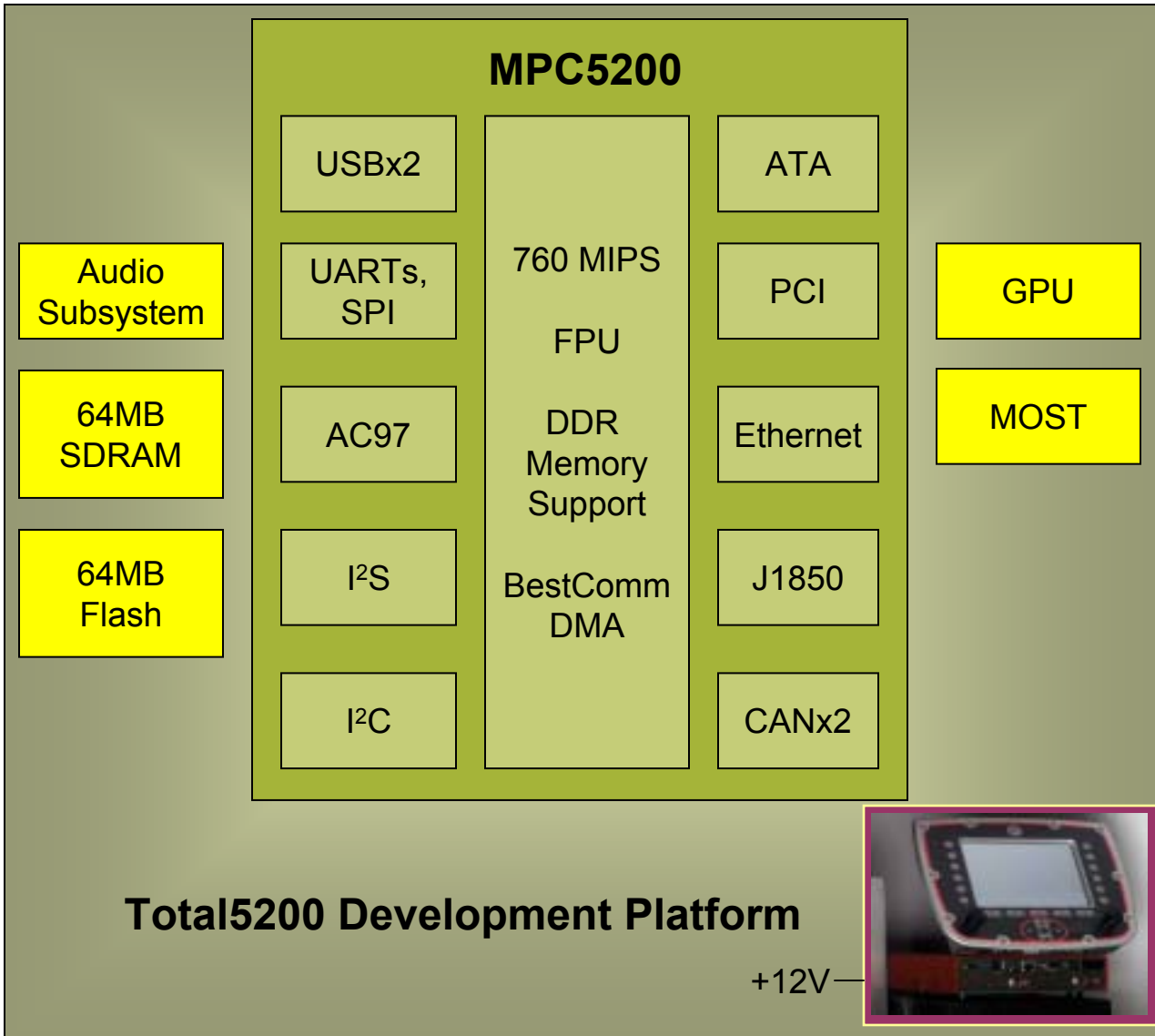
Package

- 272 pin PBGA, 1.27mm pitch



mobileGT Hardware Architecture

Add on Modules



- CD ROM
- DVD
- HDD



- Bluetooth
- 802.11
- Cellular



- GPS, Gyro
- Navigation



- Audio DSP



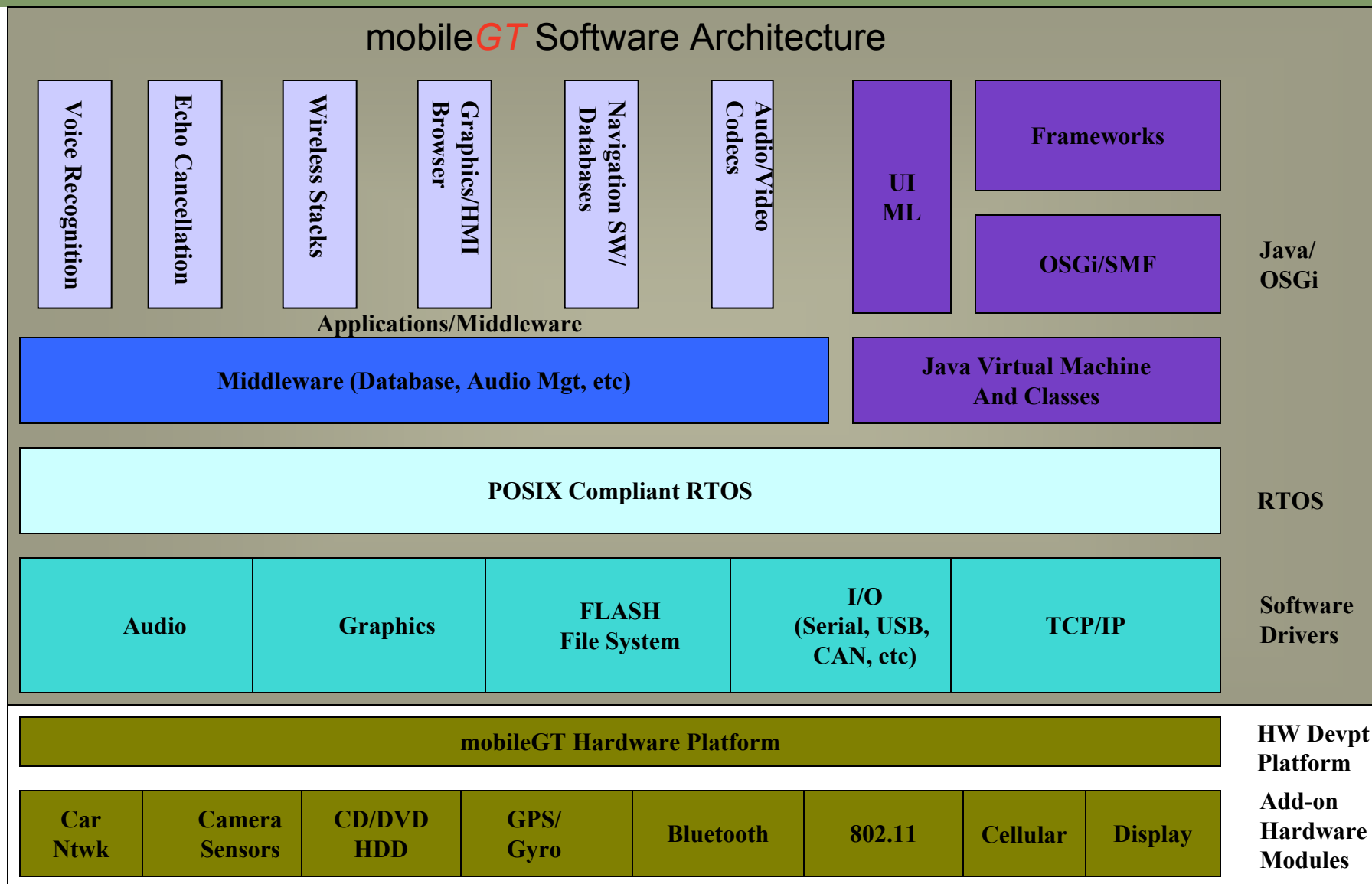
- Radio
- SDAR



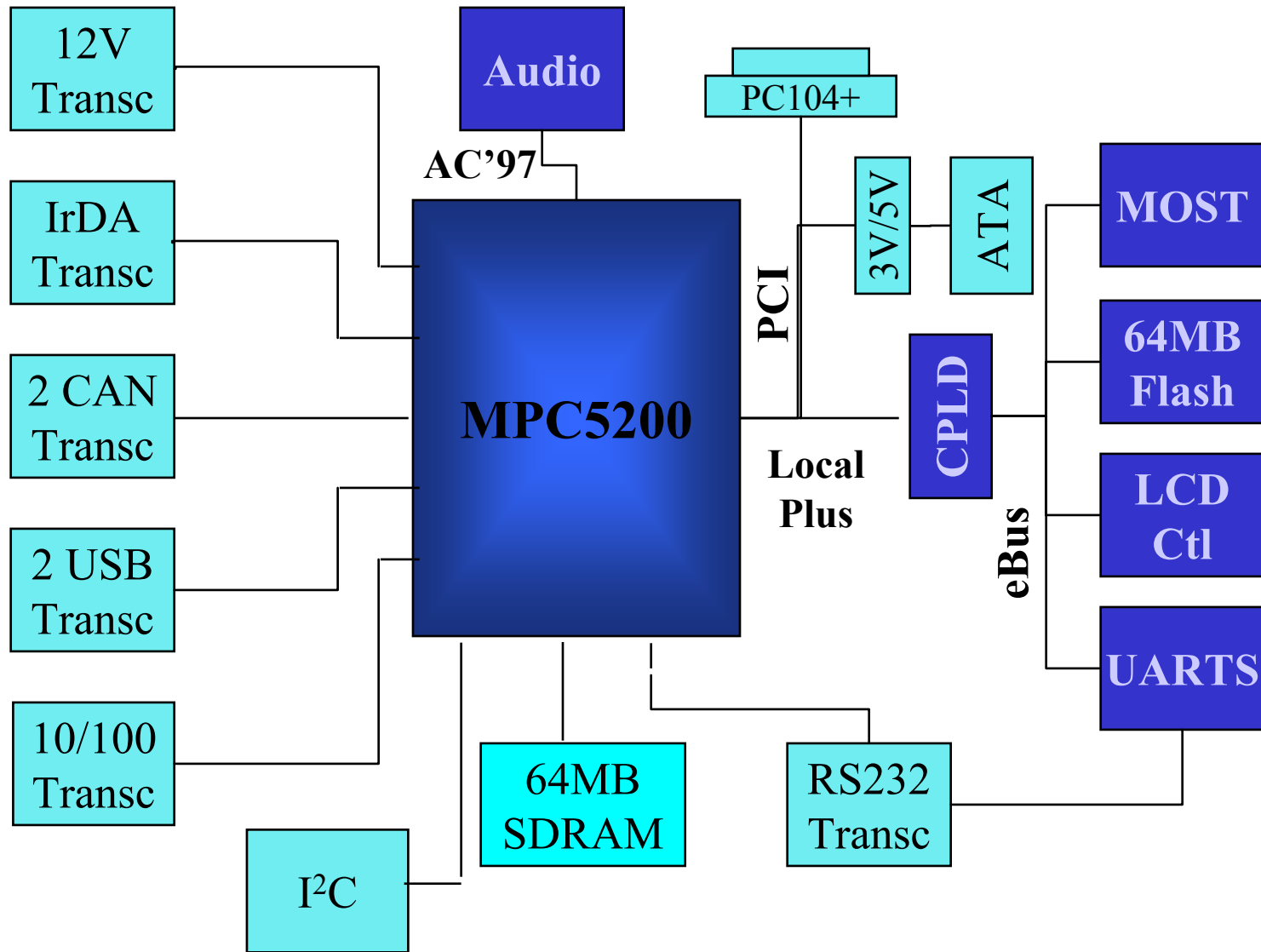
- Camera Sensors



mobileGT Software Architecture



Simplified Total5200 Block Diagram



Details for Total5200 Development Platform

400MHz Total5200 Development Platform

- Base unit - 1 DIN Form Factor
- 120VAC or 11-14VDC
- 64MB SDRAM, 64MB Flash
- PC104+(PCI), ATA
- 2 CAN, MOST, 2 USB, I²C
- 9 UARTs
- LCD controller w/ VGA & S-Video
- 10BaseT Ethernet
- Audio Inputs/Outputs supporting Mic, Bluetooth, Radio, Phone & Speaker.

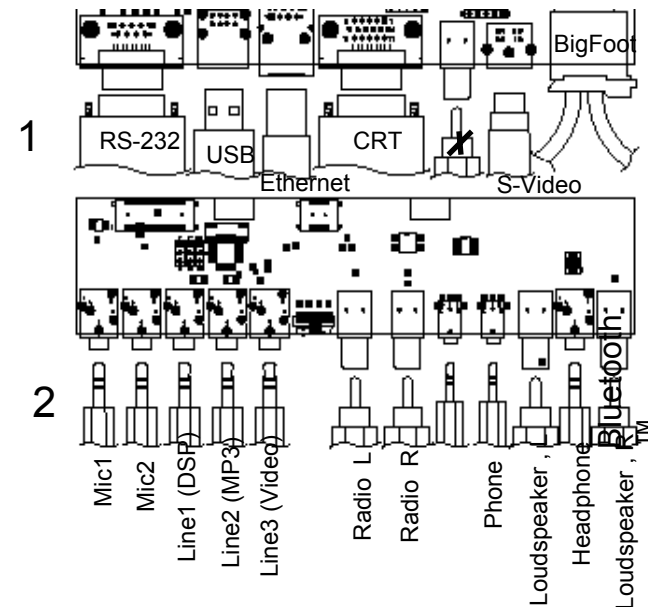
Total 5200 Graphics Unit

- Detachable, Graphics Touchscreen,
- Reconfigurable buttons

Evaluation Software/Tools

- QNX Momentics and QNX Neutrino BSP
- IBM WebSphere/ J9 Java Virtual Machine with QNX
- Green Hill Software MULTI and INTEGRITY BSP
- Metrowerks CodeWarrior and Linux BSP
- dBUG - low level debugger & boot loader

Available **NOW**



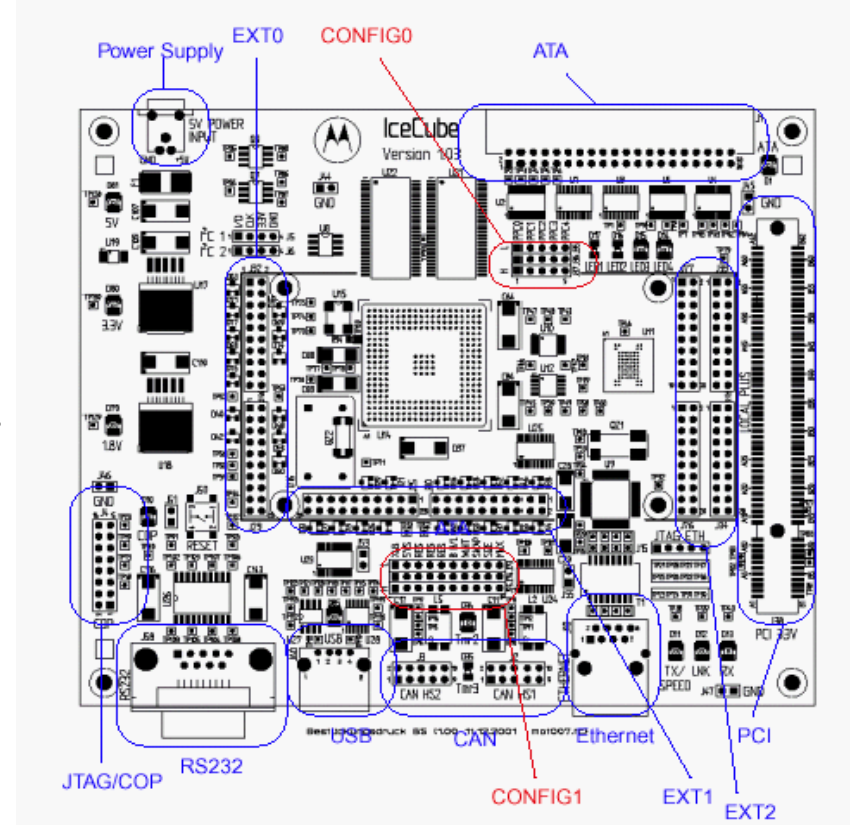
NXP Kits for Lite5200 EVB

400 MHz Lite5200 Board

- 160mm x 133mm
- 64MB SDRAM, 16 MB Flash
- PCI, ATA
- CAN (2), USB, I²C (2)
- 1 UART
- 10/100 Ethernet
- All additional MPC5200 I/O available on header connector
- *No* MOST®, LCD Controller, Graphics Display, Audio Subsystem
- *No* Integrated 12V Power Support

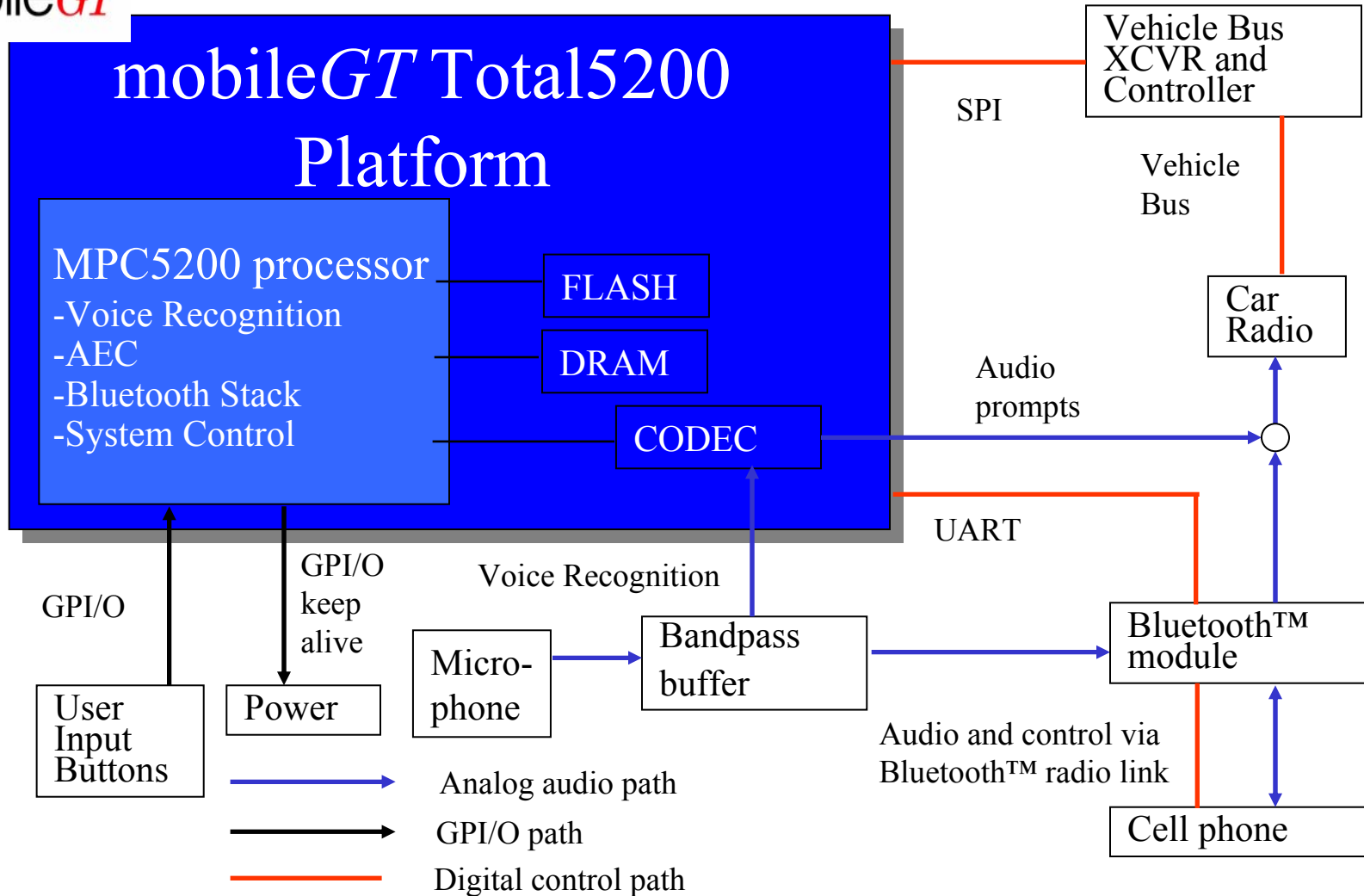
Lite5200 Software

- CodeWarrior 30-day Eval Seat
- dBUG - low level debugger & boot loader
- Support for ARC Precise/MQX, Green Hills INTEGRITY, Metrowerks Linux and OSEK Turbo, MontaVista Linux, QNX and Wind River VxWorks.

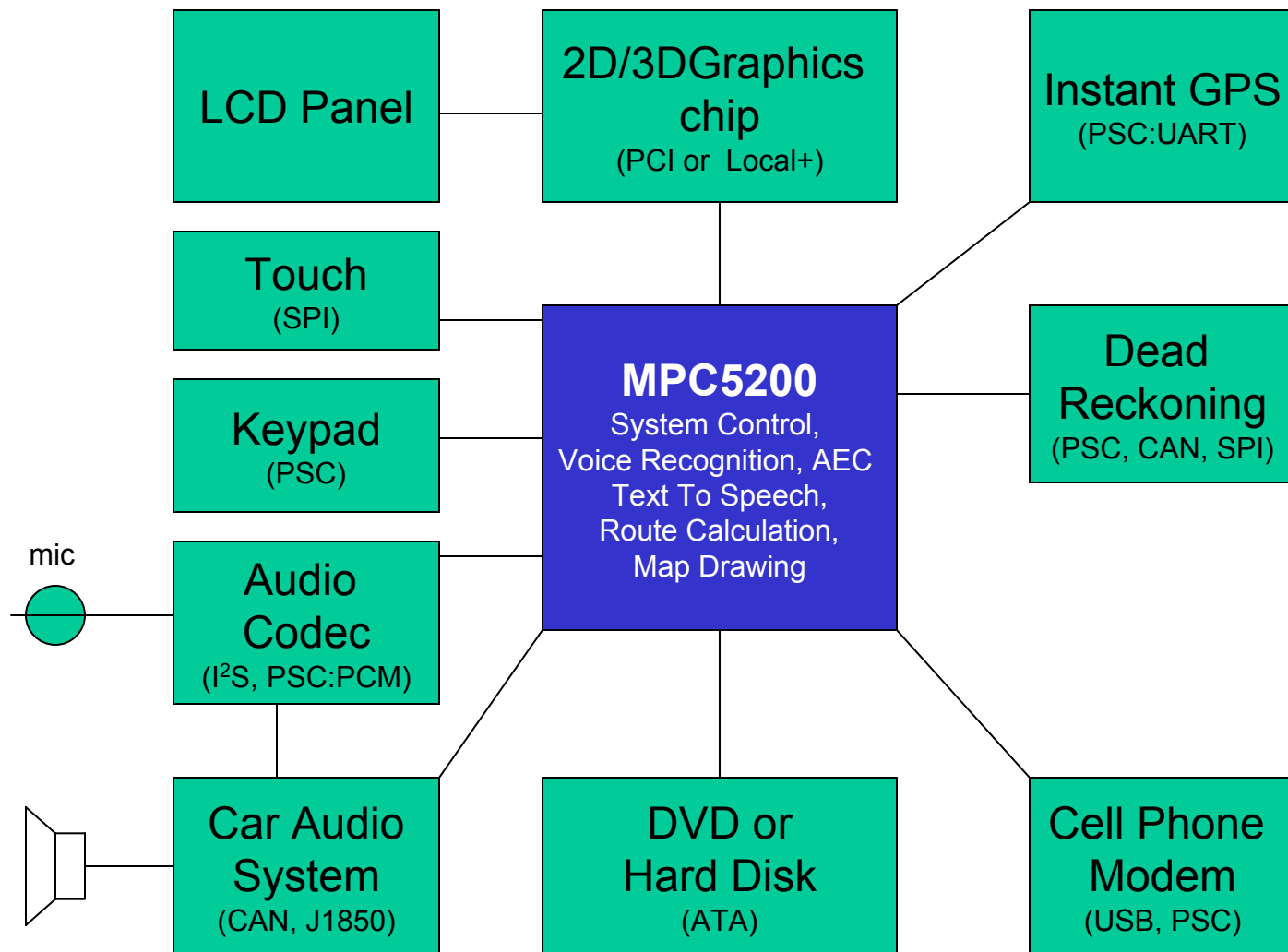


Available **NOW**

Example System #1: Hands-free Phone System



Example System #2: Navigation System



Total5200 Development Platform \$5,000

- Total5200 Hardware
- Complete Total5200 startup CD including QNX drivers, utilities, and IBM WebSphere/J9
- 30 day evaluation copy of QNX Momentics
- Freescale P/N: MPCSYS5200EVAL



Lite5200 Evaluation Board Kit \$995

- Lite5200 EVB Hardware
- Evaluation Copies of CodeWarrior, Platform Creation Suite and CodeWarrior for Embedded Linux
- Support for ARC, Green Hills Multi/INTEGRITY, Metrowerks Linux, Metrowerks OSEKturbo, MontaVista Linux, QSSL Momentics/QNX and Wind River VxWorks.
- Metrowerks WireTAP® and Green Hills Slingshot® Probes included
- P/N CWMPCEVB5200

