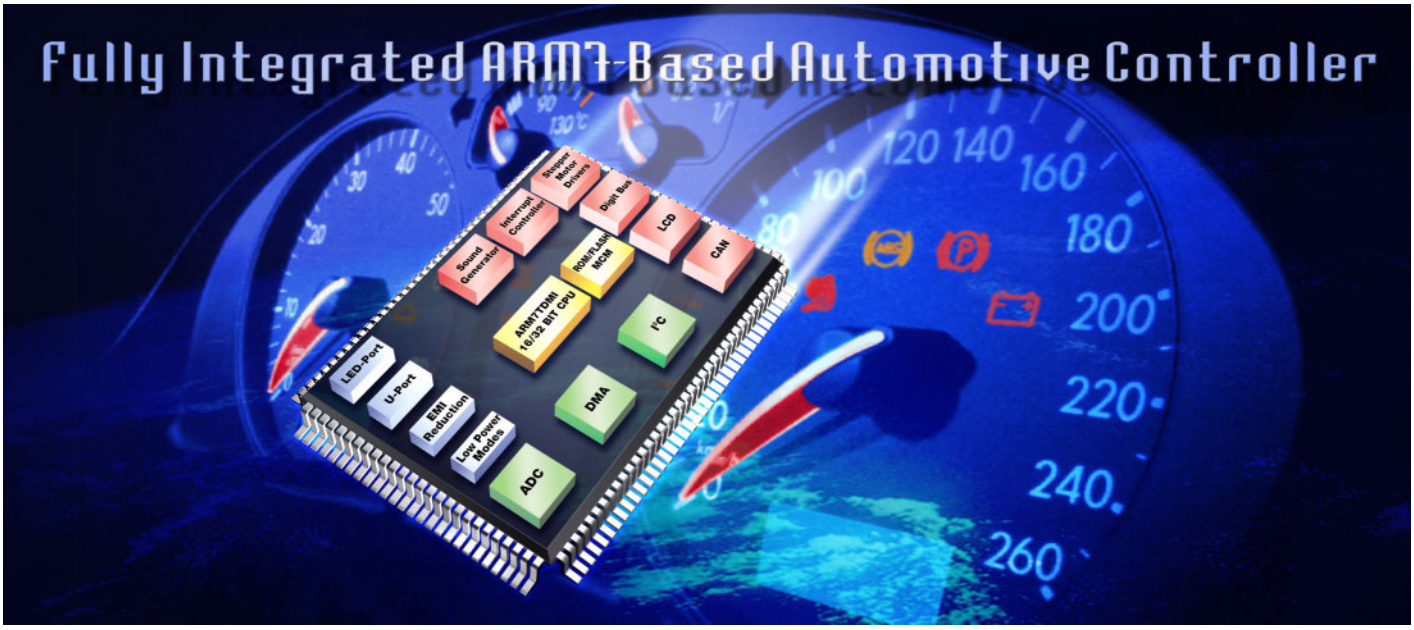
MICRONAS

CDC 3207G

May/2005



CDC 3207G
ARM7-Based Car Dashboard Controller

The CDC 3207G-Cx is a feature- improved, pin-compatible version of the existing CDC 3207G-Bx device. Both are members of Micronas' 32-bit Car Dashboard Controller family based on an ARM7TDMI CPU core (CDC 32xxG).

This device comes along with additional features like a superior power saving module (PSM), four high-speed CAN modules (Bosch V2.0B) and a device lock module to inhibit Flash access. Main characteristics of the PSM are three additional low-power modes (IDLE, WAKE, and STANDBY), an internal RC oscillator, a polling/Flash timer output, as well as an RTC (Real Time Clock).

The CDC 3207G also contains the patented built-in ERM (EMI Reduction Module).

Features

- 512 KB Flash
- 32 KB SRAM
- 8 KB boot ROM
- Four CPU operation modes (Deep Slow, Slow, Fast, PLL)
- Three low-power modes (Idle, Wake, Standby)
- RTC delivering hours, minutes, seconds
- Polling/Flash timer output
- PLL circuitry delivering up to 50 MHz
- 4- to 5-MHz oscillator
- EMI reduction module (ERM)
- Digital watchdog
- Central clock divider
- Interrupt controller with 40 inputs and 16 priority levels
- Six port interrupts
- Regulator input supervision for reset/ alarm (alarm comparator)
- Clock and supply supervision
- 16-channel 10-bit ADC
- Two comparators
- ADC reference (1 internal, 3 external)
- 48×4 LCD module
- Three DMA channels
- Two UARTs, two SPIs
- DigitBus master module
- Four CAN modules with 512 Bytes each of object RAM according to Bosch specification V2.0B (32 message objects)
- Two I^2C master modules
- Seven stepper motor drivers
- Six PWM modules (configurable as 2×8 bit or 1×16 bit)
- Pulse frequency modulator
- Sound generator with auto decay
- Two SW-selectable clock outputs
- 16-bit free-running counter with six capture/compare modules
- Patch module (up to 10 cells)
- Device lock module (DLM) inhibiting Flash access
- 1×16-bit timer and 4×8-bit timer
- JTAG interface
- –40 to +105 °C case temperature range
- Single 3.5 V to 5.5 V supply voltage (limited I/O performance below 4.5 V)
- Up to 102 GPIOs
- 128-pin PQFP package, 0.5 mm pin pitch

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Development Tools

- Evaluation chip CDC 3205G featuring
  - ETM via embedded emulation JTAG
  - ROM/Flash emulation with external SRAM (up to 8 MBytes)
- Evaluation Board (EVB) including the CDC 3205G for evaluation and debugging of embedded systems
- Application Board (APB) for Flash memory programming
- Probe for PQFP128
- Software environment (compiler, linker, assembler) from 3rd party vendors
- RTOS from 3rd party vendors
- CAN protocol stacks

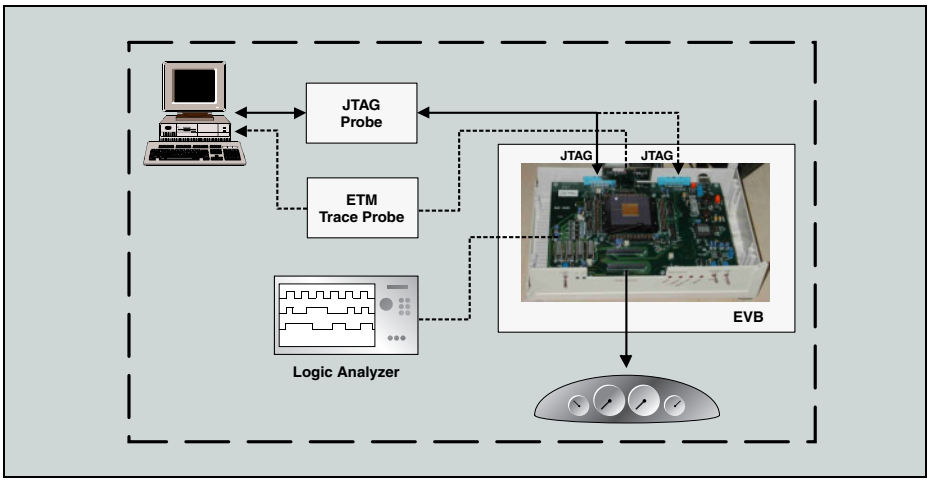

Fig. 1: Development tool setup

System Architecture

The Car Dashboard Controller CDC 3207G contains an embedded ARM7TDMI processor which operates at a maximum clock frequency of 50 MHz.

The internal high-speed bus connects the following peripherals to the ARM7TDMI processor:

- ICU (Interrupt Control Unit)
- SRAM
- DMA

The 16/32-bit bus connects to Flash and boot ROM. All other peripherals are connected to the I/O bus. All I/O ports have multiple functions to obtain utmost flexibility. A total of 102 GPIOs can be selected.

The built-in ERM delivers superb EMI results reducing the peak values by up to 10 dBµV.

The CDC 3207G is fully pin- and software-compatible with all other members of the CDC 32xxG family.

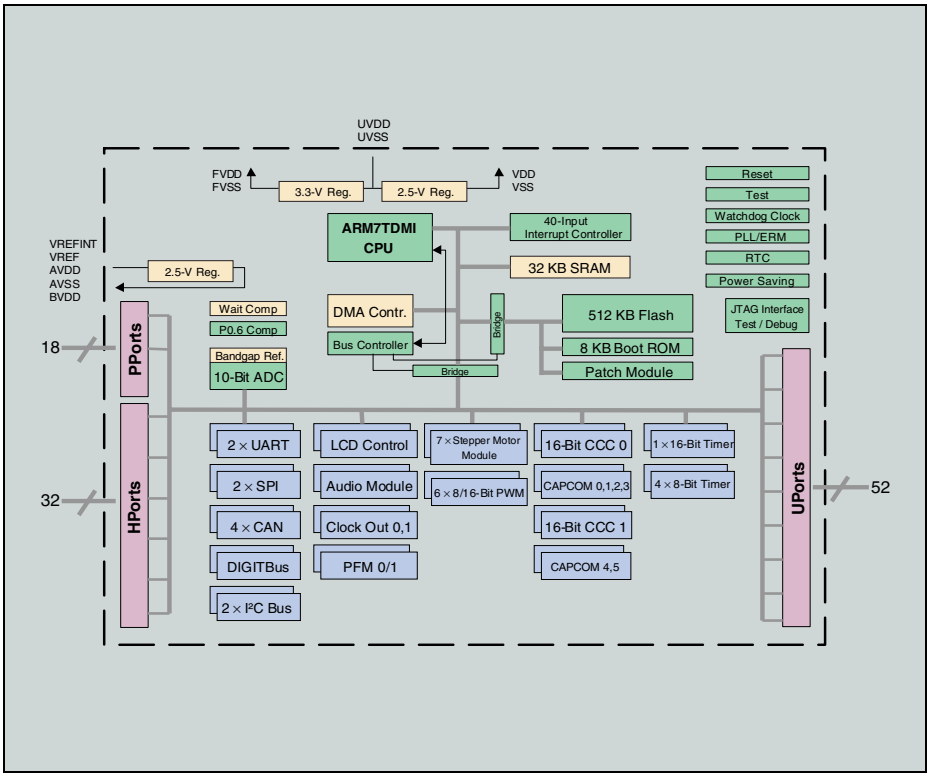

Fig. 2: Block diagram of the CDC 3207G

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