Short Information

CDC 32xxG

Car Dashboard Controller (128-Pin PQFP Package)

Introduction V1.0

The CDC 32xxG is a microcontroller for use in automotive applications. The on-chip CPU is an ARM® processor ARM7TDMI™ with 32 bit data and address bus, which supports Thumb™ format instructions.

The chip contains timer/counters, interrupt controller, multi channel A/D converter, stepper motor and LCD driver, CAN interfaces and PWM outputs and a crystal clock multiplying PLL.

Table 1: CDC 32xxG Family Feature List

Item	CDC 3205G-A1	CDC 3205G-B1	CDC3207G	CDC32xxG
Core				
CPU	32 bit ARM7TDMI™			
CPU operation modes	DEEP SLOW, SLOW, FAST and PLL			
CPU clock multiplication	PLL delivering up to 24 MHz	PLL delivering up to 24 MHz (20 MHz with ERM)		
EMI Reduction Mode	–	selectable in PLL mode		
Quartz oscillator	4 to 5 MHz			
RAM, 32 bit wide	16 kByte	24 kByte		8 kByte
ROM	ROMless, Flash Port for connection of external program storage with up to 16 Mbyte. Internal Boot ROM.		512 kByte Flash EEPROM, top boot configuration. Internal Boot ROM.	256 kByte ROM
Digital Watchdog	✔			
Central Clock Divider	✔			
Interrupt Controller expanding IRQ	40 inputs,16 priority levels			32 inputs,16 priority levels
Port Interrupts including Slope Selection	6 inputs			
Patch Module	–	10 ROM locations		6 ROM locations
Boot System	allows in-system downloading of external code to Flash memory via JTAG			-

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Analog				
Reset/Alarm	Combined Input for Regulator Input Supervision			
Clock and Supply Supervision	✔			
10 Bit ADC, charge balance type	16 channels (6 selectable as digital input)	16 channels (each selectable as digital input)		
Comparators	P06COMP with 1/2 AVDD reference	P06COMP with 1/2 AVDD reference, WAITCOMP with Internal Bandgap reference		
ADC Reference	Pin	Pin or Internal Bandgap selectable		
LCD	Internal processing of all analog voltages for the LCD driver			
Communication				
DMA	1 DMA Channel for parallel load of an 8 bit port (fast load of an external LCD driver) or of a Serial Synchronous Peripheral Interface.			
UART	2			1
Synchronous Serial Peripheral Interfaces	2			
Full CAN modules V2.0B	3 with 256 bytes of object RAM (LCAN0009)	3 with 512bytes of object RAM		1 with 256 bytes of object RAM, 1 with 512 bytes of object RAM
DIGITbus	1 master module			
I^2C	2 master modules			1 master module
Input & Output				
Universal Ports selectable as 4:1 mux LCD Segment/Backplane lines or Digital I/O Ports	up to 54 I/O or 50 LCD segment lines (=200 segments)	up to 52 I/O or 48 LCD segment lines (=192 segments), individually configurable as I/O or LCD		
Universal Port Slew Rate	Mask selectable	SW selectable		
Stepper Motor Control Modules with high current ports	7 Modules, 32 dI/dt controlled ports			
PWM Modules, each configurable as two 8Bit PWMs or one 16 Bit PWM	6 Modules			
Phase-Frequency Modulator	–	1		
Audio Module with auto-decay	✔			
SW selectable Clock outputs	2			

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Timers & Counters				
16 bit free running counters with Capture/Compare modules	CCC0 with 4 CAPCOM CCC1 with 2 CAPCOM			
16 bit timers	1			
8 bit timers	4			
Miscellaneous				
Scalable layout in CAN, RAM and ROM	–			✔
Various randomly selectable HW options	Most options SW programmable, copy from user program storage during system start-up			Mask programmed according to user specification
JTAG test interface	✔		allows Flash programming	✔
On Chip Debug Aids	Embedded Trace Module, JTAG		JTAG	
Core Bond-Out	✔		–	
Supply Voltage	4.5 to 5.5 V	3.5 to 5.5 V (PLL Mode when Flash is internally supplied: 4.1 to 5.5 V)		3.5 to 5.5 V
Ambient Temperature Range	–40 to +85 °C			
Package				
Type	Ceramic 257PGA		Plastic 128QFP 0.5mm pitch	
Bonded Pins	256		128	

Abbreviations

AM	Audio Module
CAN	Controller Area Network Module
CAPCOM	Capture/Compare Module
CCC	Capture/Compare Counter
CPU	Central Processing Unit
DMA	Direct Memory Access Module
ERM	EMI Reduction Mode
ETM	Embedded Trace Module
ICU	Interrupt Controller
I2C	I^2C Interface Module
LCD	Liquid Crystal Display Module
P06COMP	P0.6 Alarm Comparator
PINT	Port Interrupt Module
PWM	8Bit Pulse Width Modulator Module
SM	Stepper Motor Control Module
SPI	Serial Synchronous Peripheral Interface
T	Timer
UART	Universal Asynchronous Receiver Transmitter
WCOMP	Wait Comparator

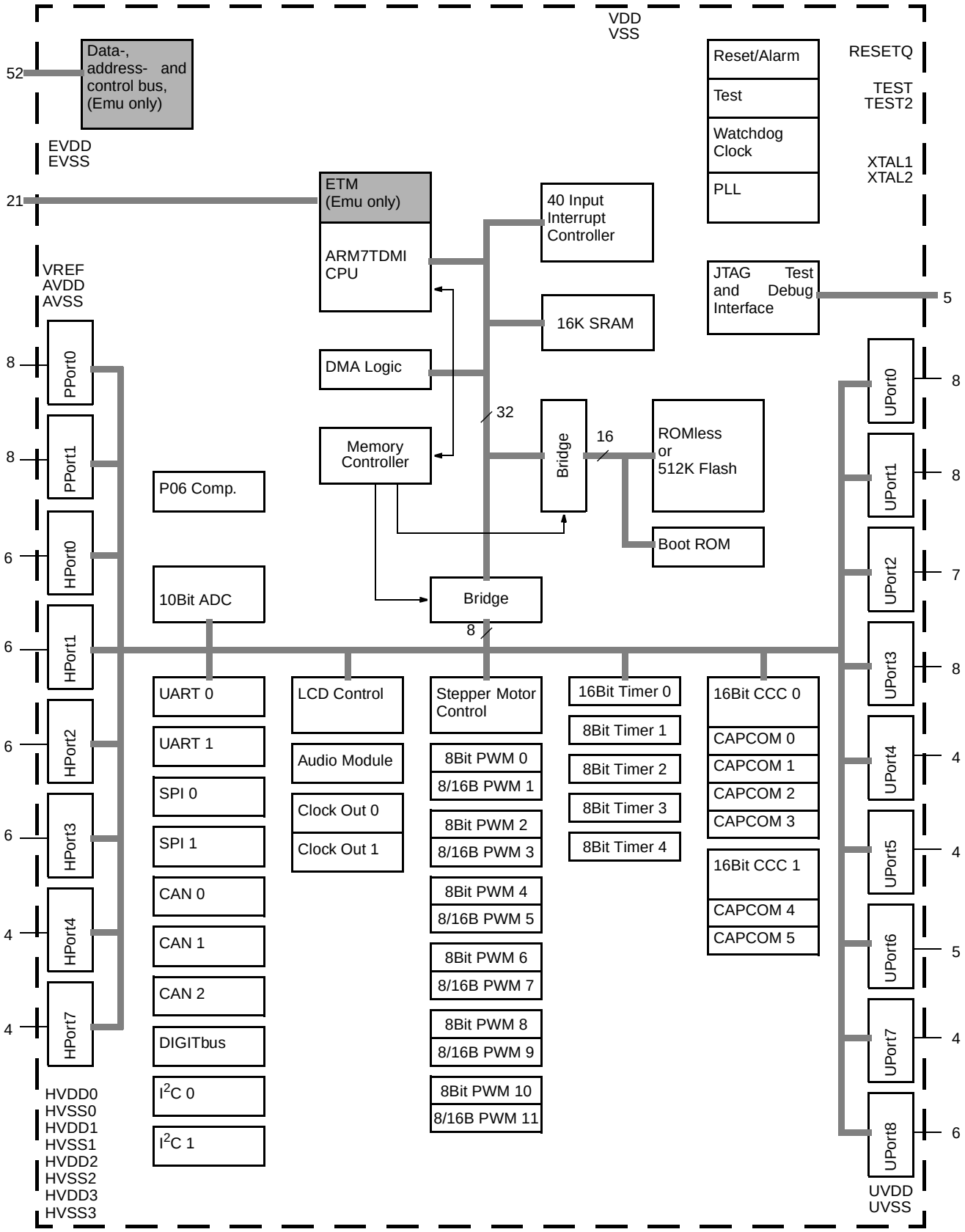

Fig. 1: CDC 3205G-1 block diagram

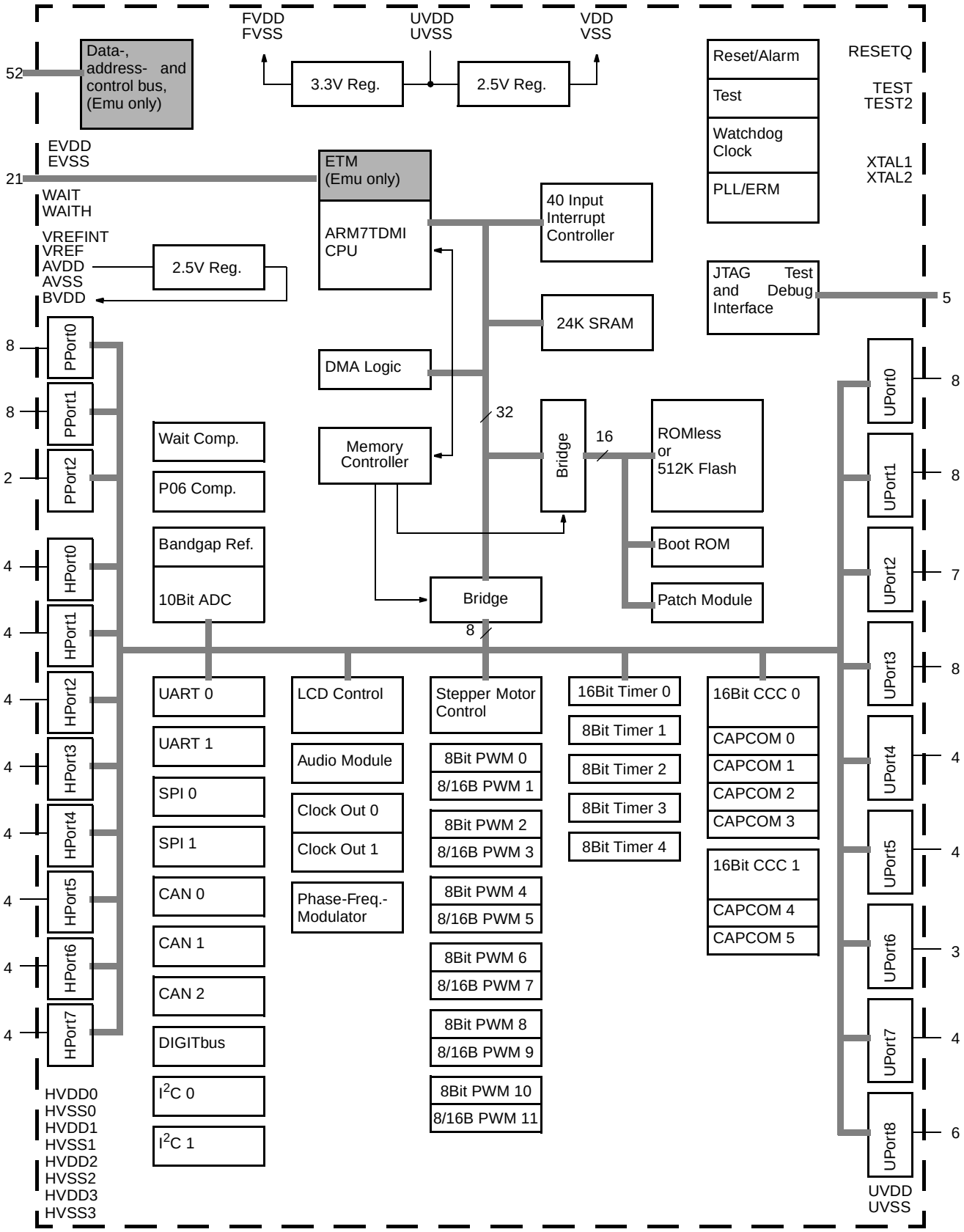

Fig. 2: CDC 3205G-2 block diagram

MICRONAS

Micronas GmbH
Hans-Bunte-Strasse 19
D-79108 Freiburg (Germany)
P.O. Box 840 · D-79008 Freiburg (Germany)
Tel. +49-761-517-0 · Fax +49-761-517-2174
E-mail: docservice@micronas.com
Internet: www.micronas.com

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