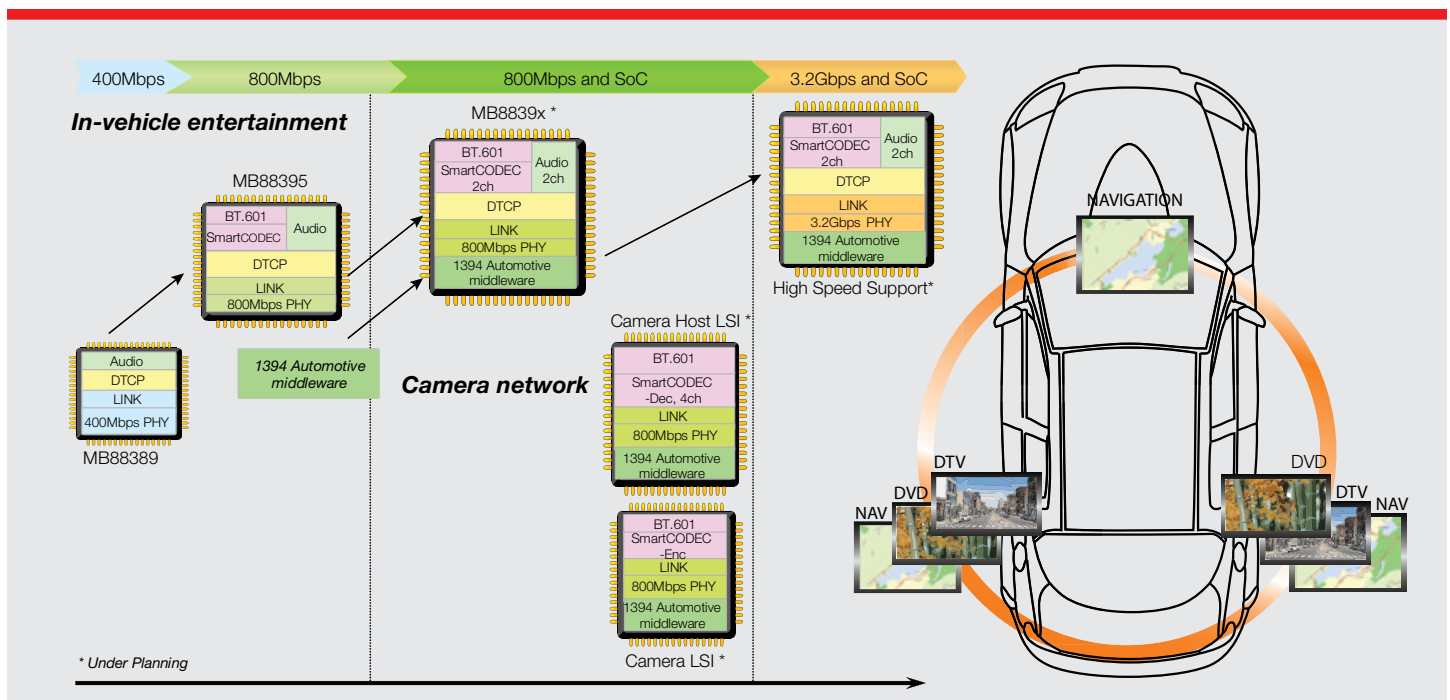


# 1394 Automotive Single Chip Controller

## MB88395 and MB88389



### Description

The MB88395 is the industry's first 1394 Automotive controller that supports HD-quality video and vehiclenavigation imaging using the 1394 standard. The controller implements the Fujitsu proprietary SmartCODEC, a video codec specified under the international standard for in-vehicle video transmission.

SmartCODEC can compress and decompress high-resolution video in 3ms without perceptible latencies. By combining the MB88395 with the MB88389 IC for 1394 Automotive-compliant audio, it is possible to realize a highquality, cost-effective, rear-seat entertainment system.

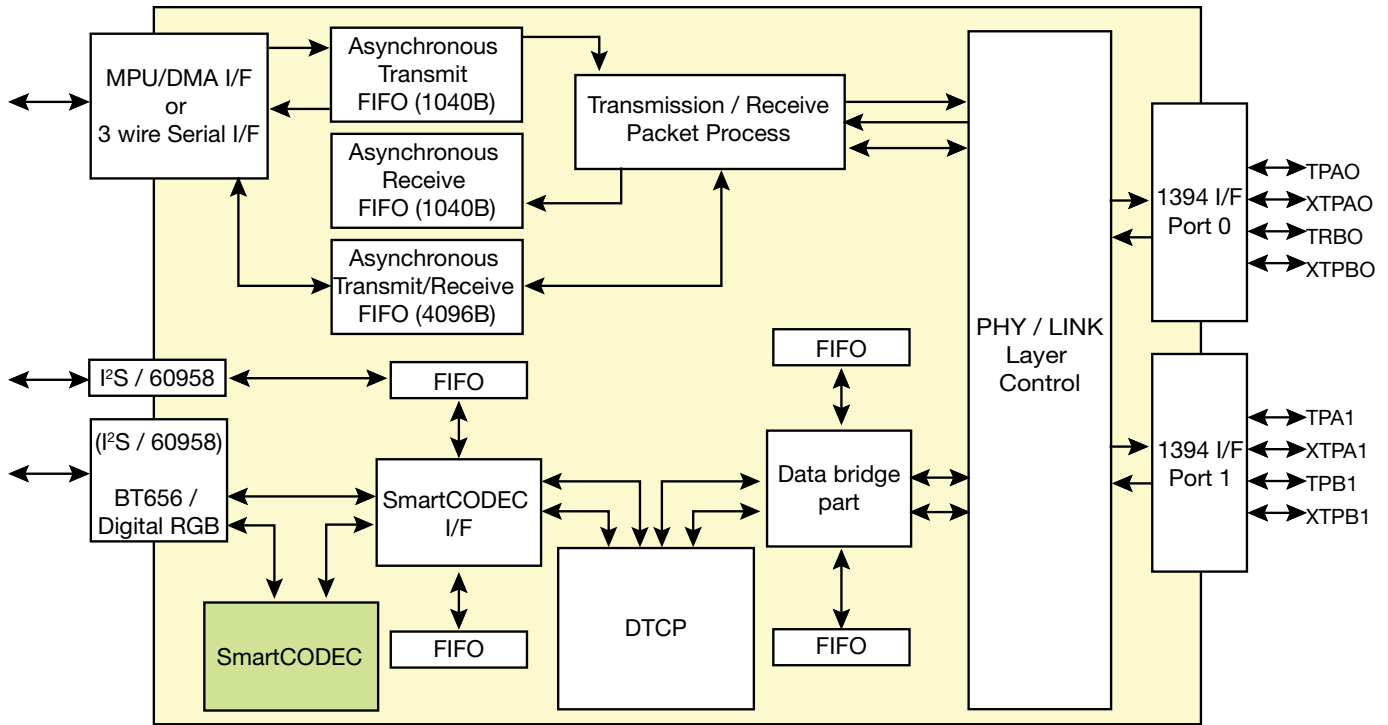
### Key Features

- S800 / S400 1394b PHY x 2 ports with link layer
- BT.601 video I/F: BT656/digital RGB
- I2S audio I/F or IEC60958 (S/PDIF)

- 16-bit MPU/DMA I/F or SPI/I2C host I/F
- SmartCODEC: 1/4 or 1/3 compression engine
- DTCP cipher/decipher, AKE accelerator
- IEC61383 AV protocol function
- Asynchronous and isochronous FIFOs
- 3.3V (I/O) and 1.2V or 1.8V (internal)
- FBGA 224 package (MB88395)
- LQFP 100 package (MB88389)

### Applications

- In-car entertainment system for Blu-ray HD video
- Passenger display systems
- Vehicle camera data network for passive and active safety
- Vehicle camera for parking aid or reverse view



MB88395 Block Diagram

Product	MB88395	MB88389
Physical Layer	Complies with IEEE-1394b-2008 <sup>(1)</sup>	
	max speed 800Mbps, 2 beta ports	max speed 400Mbps, 2 beta ports
Link Layer	Complies with IEEE-1394b-2008	
DTCP Functionality	Simultaneous encryption and decryption of two streams	
Transport Protocol Support	IEC61883-Part 8 (BT.601) <sup>(2)</sup>	IEC61883-Part 6 (Audio)
	IEC61883-Part 6 (Audio) <sup>(3)</sup>	
Video Interface	1 x BT656 or Digital RGB I/O (selectable)	None
Audio Interface	2 x I <sup>2</sup> S <sup>(4)</sup> 8-channel I/O or IEC60958 <sup>(5)</sup> I/O	2 x I2S 8-channel or IEC60958 <sup>(5)</sup> I/O
SmartCODEC	1/4 or 1/3 compression ratio	Not included
Operating Voltage	3.3V ± 0.3V (I/O), 1.2V ± 0.1V (internal)	3.3V ± 0.3V (I/O), 1.8V ± 0.15V (internal)
Operating Temperature	-40°C to 95°C	-40°C to 85°C
Packaging	FBGA 224 pins, 0.8mm pitch, 16mm x 16mm	LQFP 100 pins, 0.5mm pitch, 14mm x 14mm

Notes:

1. IEEE-1394-2008: An extension to the older IEEE1394a-2000 high-speed serial-bus standard used for PCs and audio-visual equipment. Expansions to this standard are currently underway to enable faster transmission speeds and transmission across longer distances. This standard has been adopted for 1394 Automotive.
2. IEC61883-Part 8 (BT.601): A transmission protocol established by the International Electrotechnical Commission for digital interfaces of audio and visual equipment. BT.601 Transport Over IEEE-1394 is in the process of being ratified as Part 8.
3. IEC61883-Part 6 (Audio): A protocol for streaming audio over 1394 Automotive.
4. I2S: "Inter-IC Sound" bus. An interface standard for connecting digital audio equipment.
5. IEC60958: A standard established by the International Electrotechnical Commission for digitally transmitting audio signals.

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