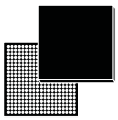
Telemaco3P automotive family of telematics and connectivity microprocessor



LFBGA361
(16x16x1.7, 0.8mm pitch)

GAPGPS00902

Product status link
STA1385

Product summary	
Order code	STA1385
Package	LFBGA 361 16x16x1.7mm
Packing	Tray/ Tape and reel

Features

- AEC-Q100 qualified Grade 2

Core and Infrastructure

- Dual ARM CortexA7 up to 600 MHz, withMMU, FPU and NEON support
- Memory organization:
  - L1 Cache: 32 KB I, 32 KB D
  - L2 Cache: 256 KB
  - Total embedded SRAM: 768 KB

Embedded Vehicle Interface

- Isolated Cortex-M3 core
  - L1 Cache: 8 KB I
- 256 KB reserved embedded SRAM (extendible to 768 KB)
- 1x CAN Standard (C_CAN)
- 2x CAN FD (M_CAN)
- 1x Flexray

Media Interfaces

- 1x SD/MMC/SDIO SDR50 (SD/MMC0)
- 1x SD/MMC/SDIO SDR25 (SD/MMC1)
- 1x USB 2.0 DR with HS PHY and HSIC
- 1x USB 2.0 DR with HS PHY
- 2x ETH AVB MAC with RMII/RGMII

Embedded HW Security Module

- HIS SHE/SHE+ Service Set with extensions for PKC (SHE_EXT)
- Cryptographic Functions Accelerators
  - Symmetric keys: MP AES
  - Public keys: RSA, ECC
  - Hash: MD5, SHA1, SHA2
- True Random Number Generator
- User pogrammable OTP memory (eHSM OTP)

Memory Interfaces

- 16-bit DDR3L-1066 (533 MHz)
- 16-bit LPDDR2-800 (400 MHz)
- SQI Interface
- 8-bit Parallel NAND (1 chip select)

I/O Interfaces

- 1x 6-channel 10-bits ADC
- 3x I2C multi-master/slave interfaces
- 6x UART controller
- 3xI2S audio interfaces
- 3x Synchronous Serial Port (SSP/SPI)
- 5x 32-bit GPIO ports
- JTAG based in-circuit emulator (ICE) with Embedded Trace Module

Operating conditions

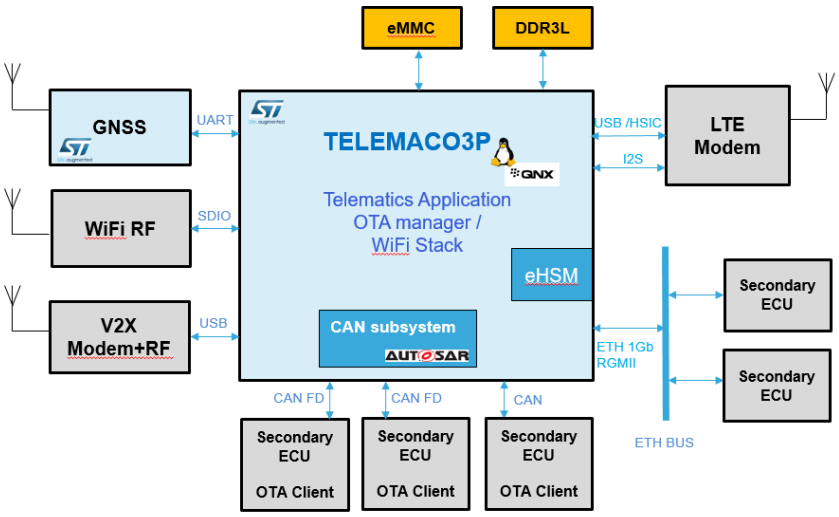
- VDD, VDD_ARM: 1.14 V-1.21 V
- VDD_IO_3V3: 3.3 V ±10%
- VDD_IO_SDMMC0: 1.8 V-3.3 V ±10%
- VDD_IO_BOOT: 1.8 V/3.3 V ±10%
- VDD_IO_ON: 3.3 V ± 10%
- VDDQ: 1.35 V ± 5% (DDR3L)
- Junction temperature range: -40 C/ +150 C

Description

STA1385 is a fully automotive, power efficient System-On-Chip, targeting cost effective processing solutions for innovative Telematics and Connectivity applications including Cyber-security protection.

It features a powerful Dual ARM Cortex-A7 processor, an embedded and independent Hardware Security Module (HSM), an isolated sub-system based on ARM Cortex-M3 for vehicle CAN interface and a full set of standard connectivity interfaces, including a dual Gbit ETH AVB controller and Flexray.

Figure 1. Application example



1 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

1.1 LFBGA361 (16x16x1.7mm) package mechanical data

Figure 2. LFBGA361 (16x16x1.7mm) package mechanical drawing

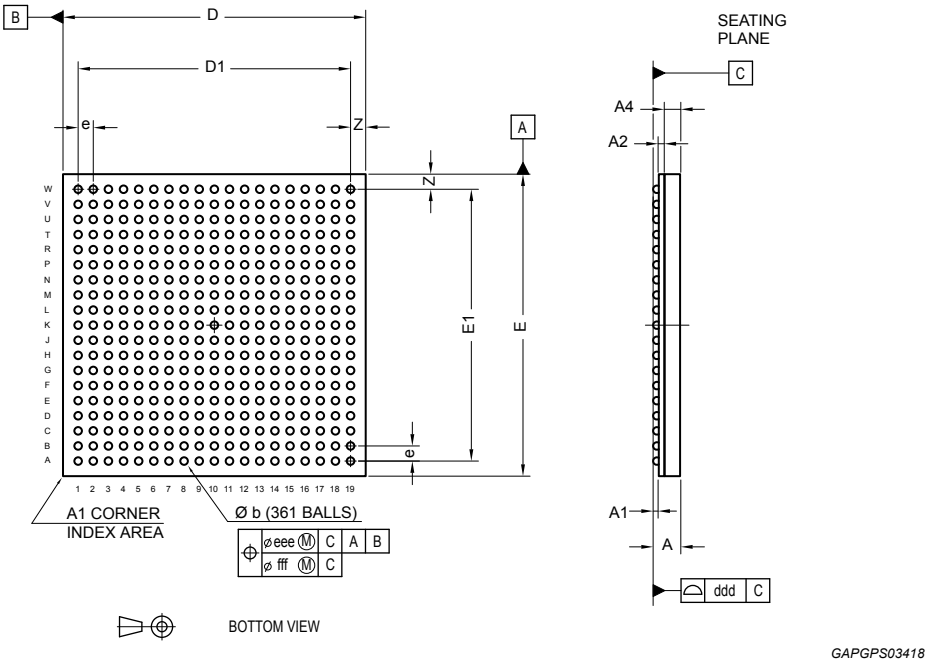


Table 1. LFBGA361 (16x16x1.7mm) package mechanical data

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.7			0.0669
A1	0.25			0.0098		
A2		0.3			0.0118	
A4			0.8			0.0315
b	0.35	0.4	0.48	0.0138	0.0157	0.0189
D	15.85	16	16.15	0.624	0.6299	0.6358
D1		14.4			0.5669	
E	15.85	16	16.15	0.624	0.6299	0.6358
E1		14.4			0.5669	
e		0.8			0.0315	
Z		0.8			0.0315	
ddd			0.1			0.0039

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
eee			0.15			0.0059
fff			0.08			0.0031

Revision history

Table 2. **Document revision history**

Date	Version	Changes
13-Oct-2017	1	Initial release.
07-Feb-2020	2	Updated Section Features and Section Description