adLuna-T

adc
advanced digital chips inc.

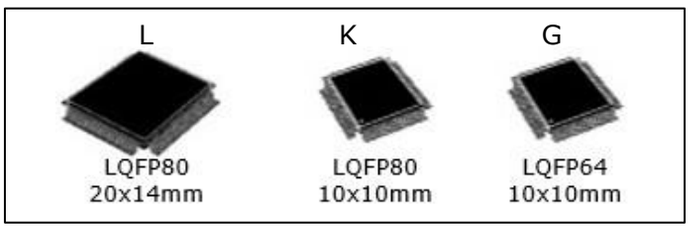
High-Performance 32-bit MCU With 512KB/1M/2M/4MB Flash, 80KB SRAM, USB, 6 UARTs, 5 Timers, 8 ADCs and Speaker Driver

Description

adLuna-T device uses the smallest, low power and energy-efficient 32bit RISC CPU core, with a maximum CPU speed of 100MHz. The portfolio covers from 512Kbyte to 4Mbyte of flash with analog/digital peripherals, memories, USB and Audio Interface. adLuna-T is 32-bit microcontroller for general purpose applications.

Features

- **32bit RISC CPU Core**
  - 5-Stage Pipelining
  - Harvard Architecture
  - 16 General Purpose Register
  - 8 Special Purpose Register
  - 1 Cycle 32bit Multiplier
  - 8Kbytes I-Cache
  - Up to 100MIPS throughput with 100MHz Clock
- **Debug Interface**
  - On Chip Debug and In-System Programming through SWD
- **Memory**
  - 512KB/1M/2M/4Mbytes Internal Flash Memory
    Endurance : 100,000 Write/Erase Cycles
  - 80Kbytes Internal SRAM
- **Sound Mixer**
  - Speaker Driver with 8 Ω and 0.6W
  - MONO Output
- **8-ch 12bit A/D converter**
  - 500kSPS
- **Low Power**
  - Sleep mode(CPU Clock off),
  - Stop mode (Main OSC off)
- **Clock, reset and supply management**
  - POR and Programmable voltage detector (BOD)
  - 4-to-16 MHz crystal oscillator
  - PLL for CPU Clock



- **Up to 47 fast I/O port**
  - 32, 47 I/Os
- **DMA**
  - 4-ch GDMA
- **Timer**
  - 5-ch 32bit Timer with 10bit pre-scaler
    Timer/Counter, PWM
    Capture, Output Compare
  - 1-ch Tick timer with 64bit down counter
  - 1-ch 32bit Watchdog Timer
- **Up to 11 Communication interface**
  - 6-ch UART
    support 6-ch. ISO 7816 interface
  - 2-ch Master/Slave SPI
  - 2-ch Two-wire Serial Interface
  - USB Full-Speed Device interface
    Supports Full-speed Data Rate 12Mbps
- **Packages**
  - 64 pin LQFP/ 80 pin LQFP
- **Part Matrix**

Product Code	Flash	SRAM
adLuna-T512G/K/L	512KB	80KB
adLuna-T1MG/K/L	1MB	80KB
adLuna-T2MG/K/L	2MB	80KB
adLuna-T4MG/K/L	4MB	80KB

G:64pin w/ 0.5, K:80pin w/ 0.4, L:80pin w/ 0.8 pitch
(Unit : mm)

Application Area

- **Audio**
  - Announcement Device
- **Automotive**
  - Hi-Pass terminal
- **Home Appliance**
  - Rice Cooker and etc.
- **Toy**
  - Toy Robot, Story Book
- **Industrial**
  - Controller
- **Security**
  - Door Lock, Access Controller

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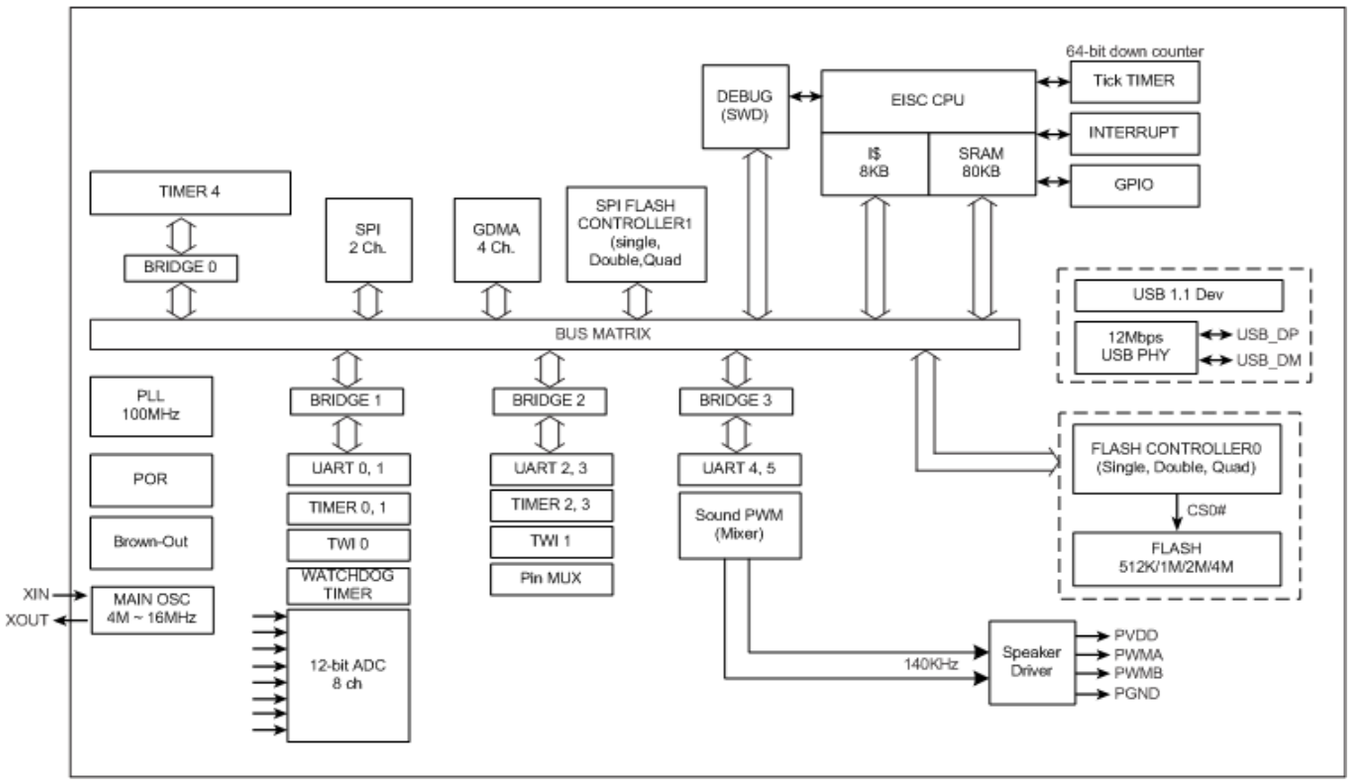
Block Diagram



Comparison CANTUS vs. adLuna-T

Functions	CANTUS	adLuna-T
CPU Speed	96MHz	100MHz
Internal NOR Flash	128KB, 512KB	512KB, 1M, 2M, 4MB
Internal SRAM	80KB	80KB
12bit ADC	-	12bit ADC (4-ch, 8-ch)
UART	8-ch	6-ch (6-ch ISO7816)
SPI	1-ch	2-ch
I2S	1-ch	-
TWI	1-ch	2-ch
Timer	2-ch	5-ch
DMA	2-ch	4-ch
Sound Mixer	-	Speaker Driver
Max. GPIO	48	32, 47
LCD Interface	SRAM	SPI
USB	USB v1.1	USB v1.1
RTC	O	X
Low Power Management	O	O
Debug Interface	JTAG	SWD
Package Type	100 pin TQFP	64, 80 pin LQFP

- **EISC Studio Software Tool**

EISC-Studio is an integrated development environment tool for the developers who are using 32bit CPU in Windows environment. EISC-Studio provides convenient source editor, compile and debug tools while user implements a system and also, various images of high level programming language and executable code for source level debugging.