HI CHIP

海奇半导体

虎鲸210

HCSEMI_Confidential

A210C

Brief Datasheet

HI-CHIP Corporation

This document together with any attachments thereto is confidential, intended only for the use of the named recipient(s) above. Any unauthorized review, use, copying, disclosure, or distribution of any information contained in or attached to this transmission is STRICTLY PROHIBITED. If you have received this message in error, or are not the named recipient(s), please immediately notify the sender and delete this e-mail message and any attached documentation from your computer. Thank you!

A210C

Brief Datasheet

CONTENTS

HCSEMI_Confidential

A210C Brief Data Sheet

1 What is A210C

The HC A210C is a cost effective, single-chip solution for high definition multimedia applications. The A210C contains a 32bit RISC CPU and rich peripherals. The general-purpose peripherals include USB EHCI Host/Device, HDMI TX, TV encoder, Audio DAC, SD/MMC ,SPI NAND and SPI NOR , DDR2 or DDR3 and so on. The chips build-in a multi-format video decoder, a 2D graphic accelerator, a high quality display engine and a flexible audio DMA engine. The whole chip provides high system performance and can satisfy a wide variety of video and audio applications.

2 Features of A210C

2.1 Key Specification

- Accelerator for MPEG and H.264 decoding with high definition solutions, max 1920x1080p@60
- 2-ports USB EHCI Host/Device
- HDMI 1.4 transmitter
- 1*Video DAC
- 16-bit DDR2 or DDR3

2.2 Power down Control

- 3.3V/1.8V/1.5V/1.1V Power supply
- Power save mode for every module

2.3 High-Performance CPU

- 32-bit RISC
- Maximum frequency of 800Mhz, applications smoothly
- Independent I-cache, D-cache

HCSEMI_Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.

2.4 Memory and Bus Interfaces

- SIP/Extra 16-bit DDR2/DDR3 DRAM interface
  - DDR2 frequency up to 1066M
  - DDR33 frequency up to 1333M
  - Max 256 MB capacity
- Suppor1- or 2-bit SPI-FLASH :Maximum capacity of 32 MB

2.5 Video Decoding

- H.264 BP/MP/HP@level 5.0, 1080p@60 fps
- H264 MVC, 1080p@60 fps
- MPEG1, 1080p@60 fps
- MPEG2 SP@ML, MP@HL, and 1080p@60 fps
- MPEG4 SP@level 0−3, ASP@level 0−5, GMC, 1080p@60 fps
- MPEG4 short header format (H.263 baseline), 1080p@60 fps
- DivX 3/4/5/6, 1080p@60 fps
- AVS baseline@level 6.0, AVS+(AVS-P16), and 1080p@60 fps
- VC-1 SP@ML, MP@HL, and AP@level 0−3, 1080p@60 fps

2.6 Image Decoding

- JPEG hardware decoding, a maximum of 64 megapixels
- Supported formats of 400, 420, 411, 422, 422T, and 444
- MJPEG baseline decoding
- Gray-scale image, true color image, indexed-color image,
- gray-scale image with alpha channel data, and true color
- image with alpha channel data

2.7 2D Graphics Acceleration

- Hardware acceleration engine, supporting highly efficient 2D processing
- Data formats of ARGB, CLUT, and AYCbCr
- Copying, filling, pattern filling, resizing, clipping, alpha blending, colorkey, and clip mask
- ROP
- Anti-flicker, gamma correction, and contrast/luminance adjustment

HCSEMI_Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.

- Programmable scanning mode
- Linked-list operation

2.8 Audio Encoding/Decoding

- Audio decoding formats
  - Dolby Digital, Dolby Digital Plus, Dolby TrueHD
  - DTS, DTSHD
  - MPEG L1/L2
  - MP3
  - AAC_LC, HE_AAC, HE_AACV2
  - LPCM
  - APE
  - FLAC
  - OggVorbis
  - AMRNB
  - AMRWB
  - G.711 (u/a)
- Audio encoding formats
  - AAC_LC, HE_AAC, HE_AACV2
  - AMR-NB
  - G.711 (u/a)

2.9 Audio Interface

- S/PDIF output support
- I2S output support
- 1-Channel Embedded Audio DAC for stereo output
- Support I2S input for MIC

2.10 Video Interface

- One CVBS output

HCSEMI_Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.

2.11 HDMI Interfaces

- One set HDMI 1.4
- Support CEC
- HDCP 2.2/1.3/1.1
- Integrates High-Bandwidth Content Protection (HDCP 1.4) for both video and audio
- Supporting high-definition video with scalable bandwidth: 0.25 - 1.48 Giga-pixels/ second

2.12 Peripheral Interfaces

- One USB 2.0 OTG ports and One USB2.0 Host/Device(SW select)
- One SDIO 2.0 interface, supporting 3.3 V component
- One IR receiver
- Multiple I2C interfaces
- UART interfaces
- SPI interface
- Multiple GPIO interfaces
- PWM interfaces

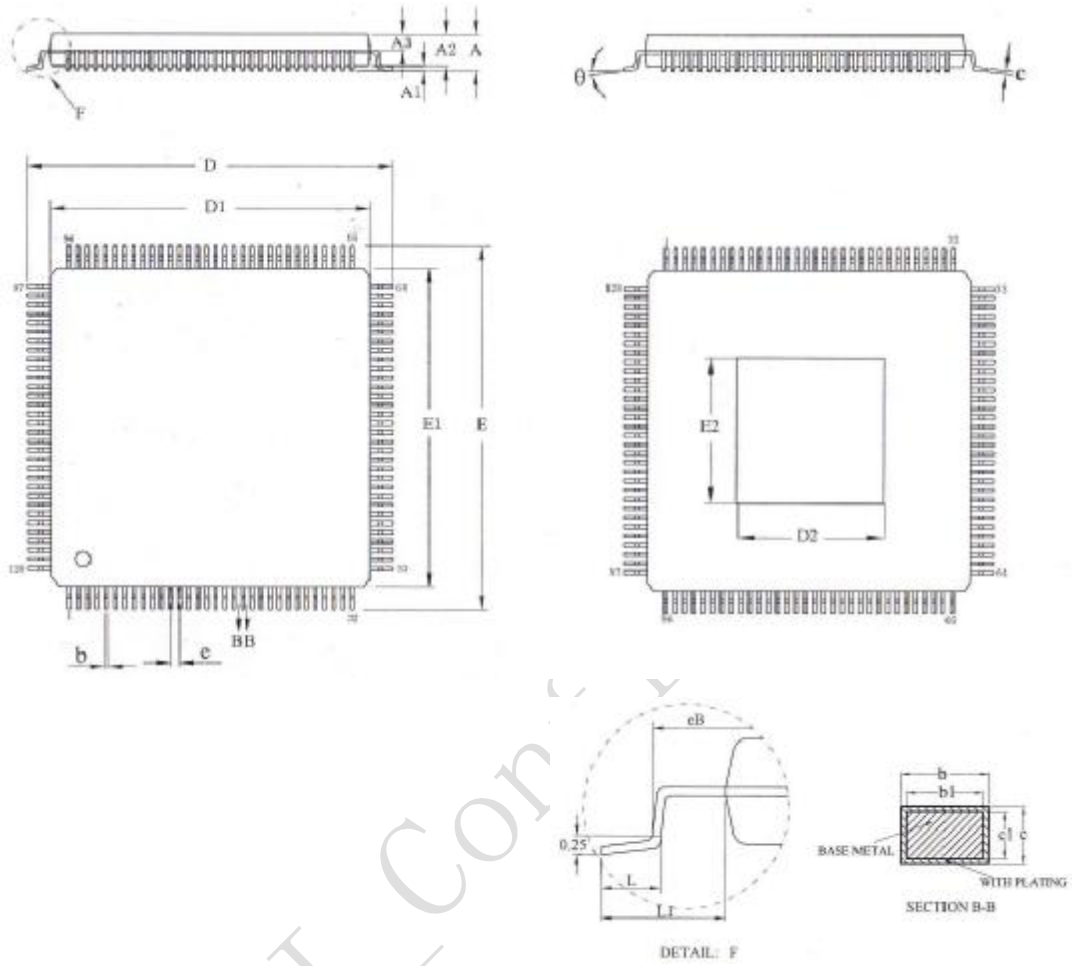
2.13 Others

- 2-layer PCB
- Various boot modes
- Boot program download and execution over a serial port
- Low-power design technologies

HCSEMI_Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.

3 Package Information



HCSEMI_Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.60
A1	0.05	—	0.15
A2	1.35	1.40	1.45
A3	0.59	0.64	0.69
b	0.14	—	0.22
b1	0.13	0.16	0.19
c	0.13	—	0.17
c1	0.12	0.13	0.14
D	15.80	16.00	16.20
D1	13.90	14.00	14.10
E	15.80	16.00	16.20
E1	13.90	14.00	14.10
eB	15.05	—	15.35
e	0.40BSC		
L	0.45	—	0.75
L1	1.00REF		
θ	0	—	7°

L/F Size (mil) \ Size (mm)	D2	E2
218*218	4.95REF	4.95REF

HCSEMI Confidential

Copyright @ Hi-Chip Semiconductor Ltd.2020.
All rights reserved.