Actions-micro AM8350 Datasheet

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Revision History

Version	Date	Description	Author
1.0.0	11/09/2021	Initial Create	maweishuo

Terms and Acronyms

Terms and Acronyms	Definition
CF	Compact Flash
SM	Smart Media
XD	xD picture
SD	Secure Digital
Micro SD	Micro Secure Digital
MS	Memory Stick
MS Pro	Memory Stick Pro
MMC	Multimedia Card
SDRAM	Synchronous Dynamic Random Access Memory
MD	MicroDrive
TF	T Flash
LCD	Liquid Crystal Display
ICE	In-circuit emulation, or in-circuit emulator
JTAG	Joint Test Action Group(ANSI/ICEEE Std.11149.1-1990)
PQFP	Plastic Quad Flat Package
LQFP	Low-Profile Quad Flat Package
BGA	Ball Grid Array
PIP	Picture In Picture
TAP	TEST ACCESS PORT
RGB	Red-Green-Blue color space representation
TCON	Timing controller

General Conventions

Symbol	Description	Notes
Note		
H	In the notes column, an H indicates the pin is hidden behind the actual physical pin listed in the Alternate Functions column and is not included in the pin count. No H indicates the actual pin is listed in the Signal Name column and the Alternate Functions column lists the alternate signals present on the pin.	
Pad GP		
1	Pad group 1	
2	Pad group 2	
Dir/Pol (direction/polarity)		
I	Input	
O	Output	
B	Bidirectional	

1 Introduction

1.1 Overview

The AM8350 processor from Actions-Micro is a highly integrated mix signal SoC target at multi-media applications. The AM8350 emmedded CPU is a high performance, low power 32bit RISC core with DSP instruction extension, which can run as fast as 800MHz.

The AM8350 processor features a hardwired multi-format video encoder, which supports a large variety of popular video formats including: MJPEG/H.264 at full HD resolution.

The AM8350 multi-media processor provided display solution

Block Diagram



AM8350 BLOCK DIAGRAM

2 Feature

The AM8350 provides high level of system integration to support a wide variety of applications. The features of the AM8350 include:

✓ **32BIT RISC CORE**

- 32K byte instruction cache and data cache
- F/W can program from DC up to 800MHz transparently
- DSP instruction for multi-media acceleration
- Static design allows changing clock at run-time for power saving

✓ **VIDEO ENCODER**

- Support ISO/IEC 14496-10/YU-T Rec.H.264
- Base Profile,Level 1-

- 8 physical channels and 4 bus channels
- Stride mode support
- Software configurable priority

✓ **Boot ROM**

- On chip boot ROM with boot loader
- The system could be loaded from SPI Nor flash

✓ **USB 2.0 OTG**

- Complies with Universal Seria10.56 Tf1 0 0 1 120.26 611.86 Tm0 g0 G[(C)-2(om)5(pl)5(i)5(es)TJ9.74 758.28 T

3 Power on Sequence

The power on sequence requirements of the AM7xxx and AM8xxx products are the same, which are shown in the following figure. VDD represents the power pins supplying power for the core. VCC represents the power pins supplying power for the general purpose pads. SVCC represents the power pins supplying power for the DDR2 or DDR3 SDRAM related pads. P_RESETB is the asynchronous reset pin. PWROK is an internal signal. It is low during the power-on phase to reset all the registers in the chip. The system boots at the moment when PWROK turns to high.

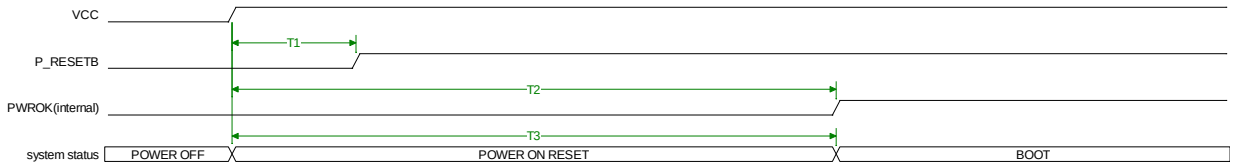


Figure 1 Power on Sequence Diagram

Timing Requirements:

1. $T1$ $20ms$
2. $T2$ $128ms$
3. $T3$ is equal to the greater one between $T1$ and $T2$
4. The power on sequence of VDD/VCC/SVCC is not cared

Pin Out Specification

79	P_DDRBA1	B	P_DDRBA1
80	P_DDRBA0	B	P_DDRBA0
81	P_DDRBA2	B	P_DDRBA2
82	P_DDRWEB	B	P_DDRWEB
83	VDD	PWR	VDD
84	SVCC	PWR	SVCC
85	P_DDRDQ4	B	P_DDRDQ4
86	P_DDRDQ3	B	P_DDRDQ3
87	P_DDRDQ1	B	P_DDRDQ1
88	P_DDRDQ6	B	P_DDRDQ6
89	P_DDRDQ12	B	

122	P_DDRA11	B	P_DDRA11
123	SVCC	PWR	SVCC
124	VDD	PWR	VDD
125	P_IRTX	B	

5 Operating Conditions

Absolute Maximum Ratings

SYMBOL	PARAMETER	RATING	UNITS
V_{CC}	Power Supply (3.3V)	3.8	V
Vsvcc	Power Supply (1.5V)	1.575	V
V_{dd}	Power Supply (1.35V)	1.4	V

6 Crystal Requirements

Requirements for 24MHz oscillator.

Description	Specification Requirement
Nominal Frequency	24MHz
Oscillation Mode	Fundamental
Frequency Tolerance at 25	±30ppm
Temperature Stability	±50ppm
Shunt Capacitance (Co)	7pF max
Load Capacitance (CL)	12pF~18pF
Equivalent Series Resistance (ESR)	50ohm max
Drive Level	500uW max
Aging (at 25)	±3ppm/year
Insulation Resistance	10meg
Net Weight	This will b.77 553.75 226.49 18.024K 981ETQ EMu

7 Mechanical Specification

