

ACTIONS-MICR

ACT

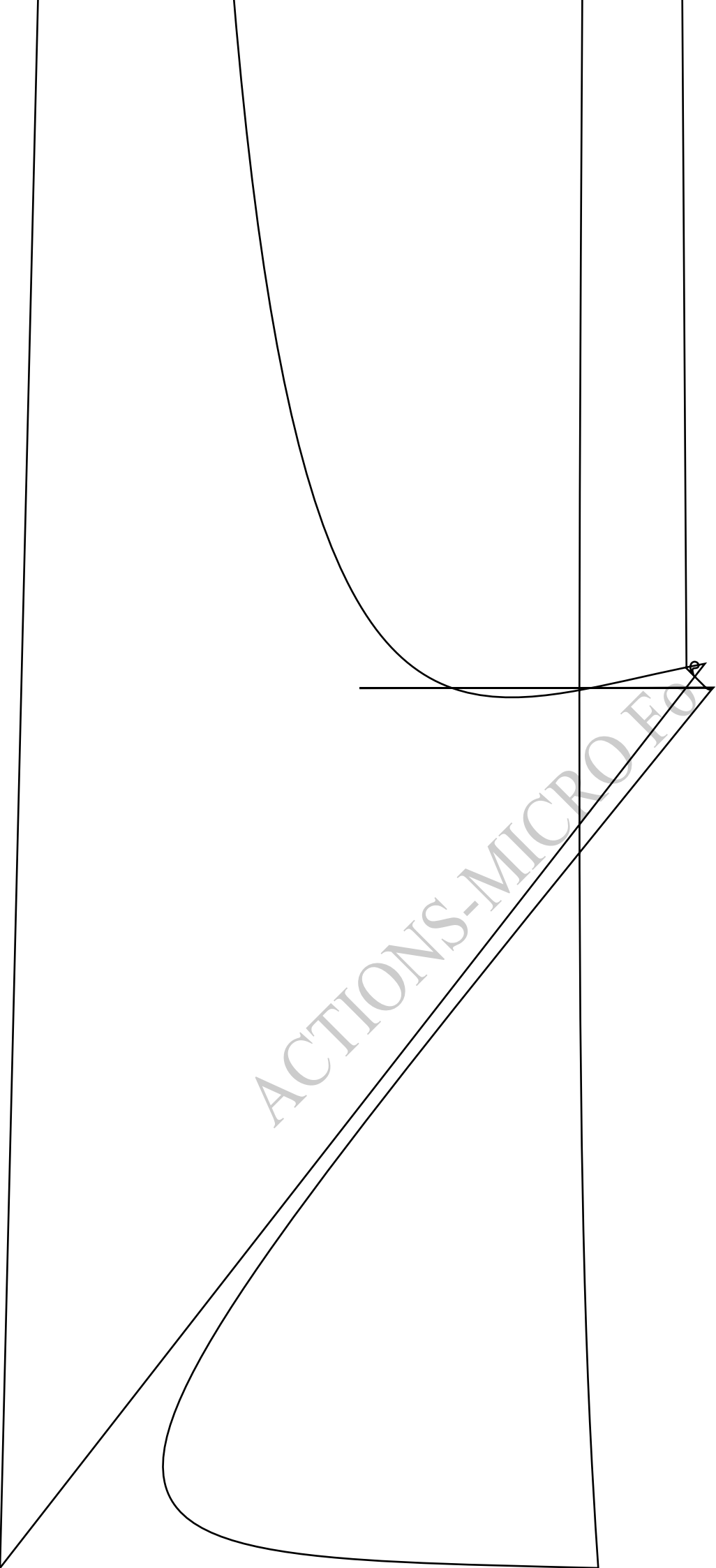


Table of Contents

Terms and Acronyms

General Conventions

Declaration.....	2
1 Introduction.....	8
1.1 Overview	8

Revision History

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

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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



ACTIONS-MIC

ACTIONS-MICRO

Block Diagram



AM8352 BLOCK DIAGRAM

2 Feature

The AM8352 provides high level of system integration to support a wide variety of applications. The features of the AM8352 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 1-5.1
 - Main Profile ,levels 1-5.1
 - High Profile ,levels 1-5.1
 - Support JPEG ITU-T Rec.T81(09/92),Baseline interleaved/JFIF
 - 60 frames per second at 1920x1080 resolution for video all format
- ✓ **IMAGE/VIDEO COMPRESSOR**
 - Support upto 1080P Resolution
 - Support 8bit YCbCr 4:2:2 & YCbYCr/RGB
 - Adaptive compress ratio up to 1:6
- ✓ **OSD**
 - 1,2 OSD bitmap data width
 - 256x128 size in 2 bit or 256x256 in 1 bit
- ✓ **DISPLAY INTERFACE**
 - HDMI Rx support, industry standard compliance HDMI 1.3a
- ✓ **AUDIO**
 - I2S IN & I2S OUT interface
 - Support 32 levels volume control
- ✓ **MEMORY Storage**
 - DDR2/3 SDRAM up to 4Gb @ 16bit up to 1066Mbps
 - OTP ROM 64bit Chip ID
- ✓ **DMA CONTROLLER**
 - 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 Serial Bus Specification. Revision 2.0.
- Complies with On-The-Go Supplement to the USB2.0 Specification Revision 1.0a.
- Supports point-to-point communication with one low-speed, full-speed or high-speed device in Host mode.
- Supports full-speed or high-speed in peripheral mode.
- Supports USB Mass Storage Class Bulk-Only Transport Revision 1.0 as host or device.
- Supports Electronic still picture imaging Picture Transfer Protocol (PTP)
- Supports direct print function using pict-bridge
- Supports Universal Serial Bus Device Class Definition for Printing Devices Version 1.1 as host
- Supports Universal Serial Bus Still Image Capture Device Definition Revision 1.0 as host
- Configurable/programmable size of endpoints.
- Configurable/programmable single, double, triple or quad buffering.
- Programmable type of endpoints.
- Supports high-speed high-bandwidth Isochronous and Interrupt transfer.
- Supports suspend, resume and power managements function.
- Support USB wakeup

✓ **OTHER INTERFACE**

- UART/I2C/SPI
- 3 external interrupts
- 35 configurable GPIO shared with function pins

✓ **POWER**

- 1.3v for core
- 3.3v/2.5v/1.8/1.5v for mac io, 3.3v for others
- Core PLL, LCD PLL, Audio PLL and DDR PLL support spread spectrum

✓ **PACKAGE**

- QFP 128pin (epad), 14x14mm

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.

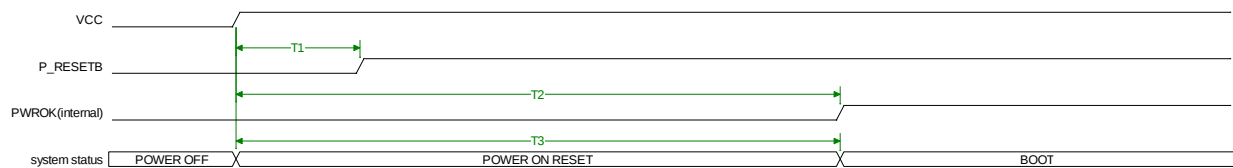


Figure 1 Power on Sequence Diagram

Timing Requirements:

1. $T1$ 20ms
2. $T2$ 128

4 Pin Out Specification

Pin out table

PIN NUM	PIN NAME	TYPE	Function
1	P_SPINSS	B	SPI_NSS
2	VCC3	PWR	VCC3
3	DVCC_PLL	PWR	AVCC_PLL2
4	HOSCI	A	HOSCI
5	HOSCO	A	HOSCO
6	AVCC2	PWR	AVCC2
7	VDD	PWR	VDD
8	EXT_R	A	EXT_R
9	AVDD33	PWR	AVDD33
10	RXCN_CH	A	RXCN_CH
11	RXCP_CH	A	RXCP_CH
12	RX0N_CH	A	RX0N_CH
13	RX0P_CH	A	RX0P_CH
14	RX1N_CH	A	RX1N_CH
15	RX1P_CH	A	RX1P_CH
16	RX2N_CH	A	RX2N_CH
17	RX2P_CH	A	RX2P_CH
18	AVDD12	PWR	AVDD12
19	HDMI_ON0	A	HDMI_ON0
20	HDMI_OP0	A	HDMI_OP0
21	AVCCPLL	PWR	AVCCPLL
22	HDMI_ON1	A	HDMI_ON1

36	P_UARTRX1	B	GPIO18
37	P_EXTINT0	B	EXTINT0
38	P_EXTINT1	B	GPIO32/I2STMCLK
39	P_I2SSCK	B	I2SSCK/IRRX
40	P_I2SSD	B	I2SSD/I2STSD
41	P_I2SWS	B	I2SWS/I2STWS
42	P_MACRVLD	B	RGMII_RXCTL
43	P_MACMDIO	B	MACMDIO
44	P_MACMDC	B	MACMDC
45	P_MACTVLD	B	RGMII_TXCTL
46	P_MACTD1	B	RGMII_TXD0
47	P_MACTD0	B	RGMII_TXD1
48	P_MACTCLK	B	RGMII_TXCLK
49	VCC0(2.5V)	PWR	VCC0(2.5V)
50	P_MACRD1	B	RGMII_RXD1
51	P_MACRD0	B	RGMII_RXD0
52	P_MACTD2	B	RGMII_TXD2
53	P_MACTD3	B	RGMII_TXD3
54	P_MACRD2	B	RGMII_RXD2
55	P_MACRD3	B	RGMII_RXD3
56	P_MACTER	B	MAC_CLKO
57	P_MACRCLK	B	RGMII_RXCLK
58	VDD	PWR	VDD
59	AVCC	PWR	AVCC
60	VBUS0	A	VBUS0
61	DM0	A	DM0
62	DP0	A	DP0
63	UVCC0	PWR	UVCC0
64	P_DRVVBUS0	B	DRVVBUS0
65	P_I2C0SCL	B	DDCSCL/GPIO20
66	P_I2C0SDA	B	DDCSDA/GPIO21
67	VCC2	PWR	VCC2
68	P_UARTRX0	B	UARTRX0
69	P_UARTTX0	B	UARTTX0
70	VDD	PWR	VDD
71	SVCC	PWR	SVCC
72	P_DDRA12	B	P_DDRA12
73	P_DDRA9	B	P_DDRA9
			P_DDRA7
			P_DDRA5
			P_DDRA3
77	P_DDRA1	B	P_DDRA1

AC

ACTIONS-M

5 Operating Conditions

Absolute Maximum Ratings

SYMBOL	PARAMETER	RATING	UNITS
V _{CC}	Power Supply (3.3V)	3.8	V
V _{SVCC}	Power Supply (1.5V)	1.575	V
V _{DD}	Power Supply (1.35V)	1.4	V
V _{IN}	Input Voltage	-0.5~4.6	V
V _{OUT}	Output Voltage	-0.5~4.6	V
T _{STG}	Storage Temperature	0~75	°C
T _C	Operation Temperature (Case Surface)	0~70	°C
T _a	Ambient Temperature	0~60	°C

Recommended Operation Conditions

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS
V _{CC}	Power Supply (3.3V)	3.0	3.3	3.6	V
V _{SVCC}	Power Supply (1.5V)	1.425	1.5	1.575	V
V _{DD}	Power Supply (1.35V)	1.3	1.35	1.4	V
T _a	Ambient Temperature	0	35	60	°C

DC Electrical Characteristics for 3.3 volts operation

(Under Recommended Operating Conditions and V_{CC} = 3.0V~3.6V, T_j = 0 to +70) °C

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V _{IL}	Input Low Voltage				0.8	V
V _{IH}	Input High Voltage		2.2			V
V _{T-}	Schmitt Input Low Voltage				0.9	V
V _{T+}	Schmitt Input High Voltage		1.9			V
V _{OL}	Output Low Voltage	4mA			0.4	V
V _{OH}	Output High Voltage	4mA	2.4			V

ACTIONS-M

7 Mechanical Specification

