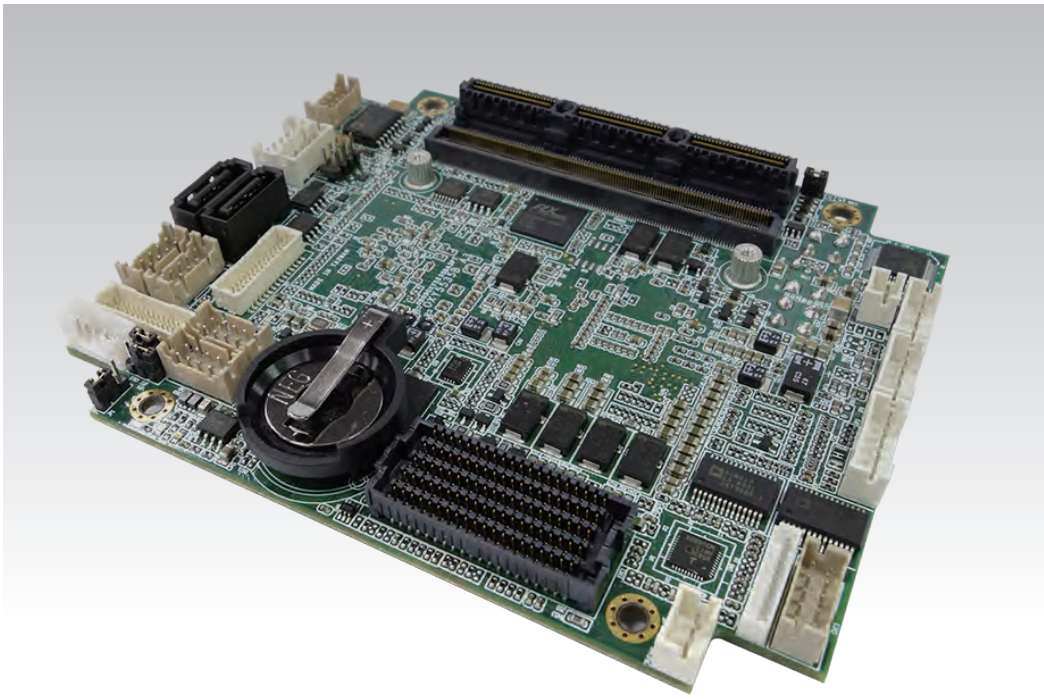
OXY5535B

StackPC (PCIe/104) Embedded Board
User's Manual



Safety Information

1. Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area.
- If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your local distributor.

2. Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter any technical problems with the product, contact your local distributor

Statement

Revision History

Revision	Date (yyyy.mm.dd.mm)	Changes
Version 1.0	2015.05.08	Initial release
Version 1.1	2015.12.08	PCBA version change from V2 to V3
Version 1.2	2016.01.14	XP4, XP6, XP7 pin definition correction Block Diagram data correction Key feature data correction

Packing list

- ☐ OXY5535B embedded board
- ☐ CD (Driver + user's manual)

Optional Accessories

- ☐ XR-DIMM
- ☐ Cable kit for OXY5535B
- ☐ SK301-StackPC Stacker
- ☐ SK302-FPE Stacker

If any of the above items is damaged or missing, please contact your local distributor.

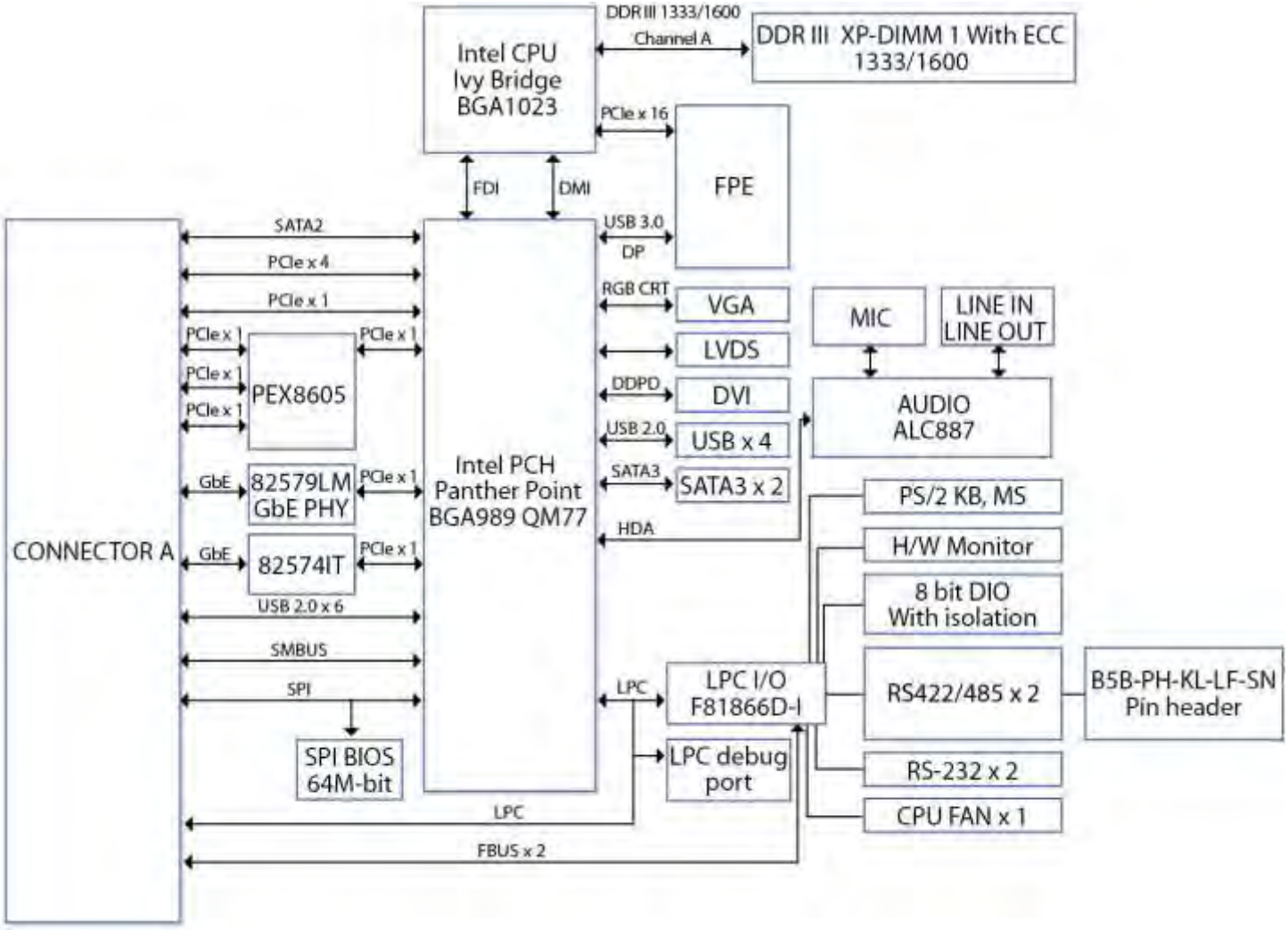
Ordering Information

Model Number	Description
OXY5535B-ET	Intel® Ivy Bridge Core™ i7 StackPC with QM77 Chipset, Wide Temp. -20 to 70°C
OXY5535B-UT	Intel® Ivy Bridge Core™ i7 StackPC with QM77 Chipset, Wide Temp. -40 to 85°C

Table of Contents

Chapter 1: Product Information

1.1 Block Diagram



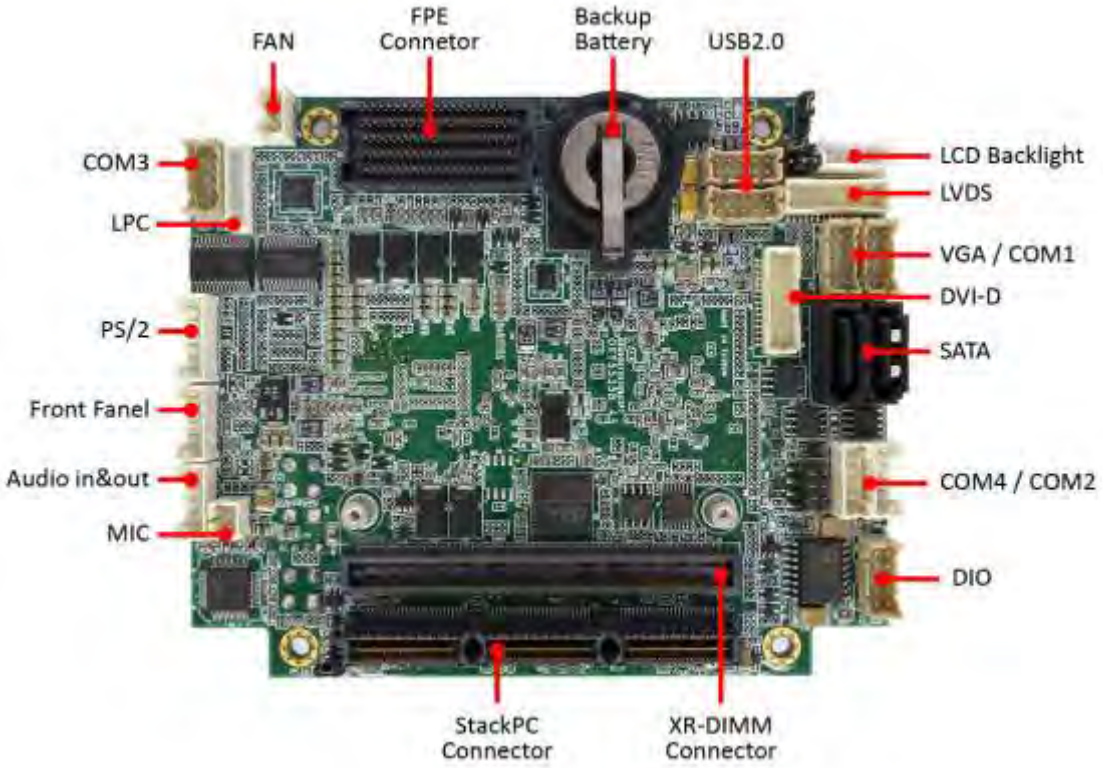
1.2 Key Features

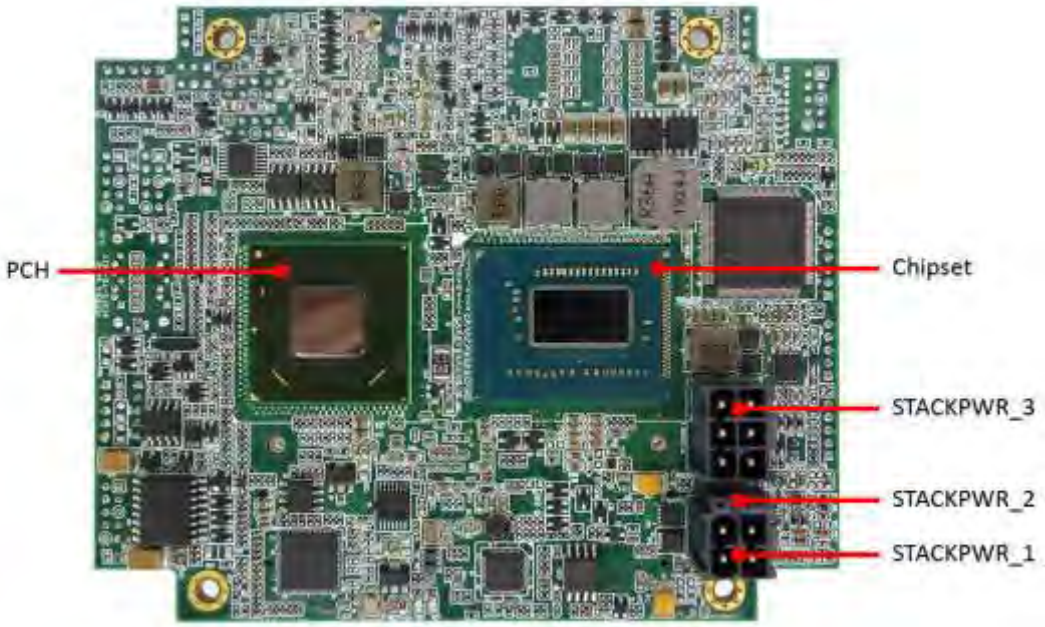
Processor & System	
CPU Type	Intel® 22nm Ivy Bridge Processor (Mobile) socket (FCBGA1023) Core™ i7 3517UE (2C x 1.7 GHz), 4M L2 cashe (17 W) Core™ i3 3217UE (2C x 1.6 GHz), 3M L2 cache (17 W) Celeron 1047UE (1.4 GHz), 2M L2 cache (17W)
Chipset	Intel® QM77
XR-DIMM	1 x DDR3 1333/1600 MHz XR-DIMM w/ECC up to 8 GB
Ethernet	Intel® 82579LM & 82574IT GbE LAN (support 10/100/1000Mbps for x2 RJ45 ports)
Storage Device	Onboard SATA NAND Drive up to 32 GB
Display	
Chipset	Integrated GFX in Ivy Bridge processor
VGA	Yes, (Max: SXGA 2048 x1536) @ 60 Hz
DVI-D	Yes, (Max. resolution 1920 x 1080)
LVDS	Yes, (Supports single/dual channel 24-bit LVDS)
Independent Display	VGA+LVDS
Audio	
Codec	Realtek ALC887 High Definition Audio Codec

Internal I/O	
SATA	2 x SATAIII (6 Gb/s)
NAND Flash Drive	1 x 8 GB MLC or 1 x 32 GB MLC
USB	4 x USB 2.0
COM	2 x RS232 2 x RS422/485
VGA	1 x 10-pin connector
Audio	Line-in, Line-out, Mic-in
LVDS	1 x 30-pin connector
Inverter	1 x 5-pin connector
DVI-D	1 x 30-pin connector
DIO	8-bit (4 in/4 out with isolation)
PS/2	1 x 6-pin header
FAN	1 x CPU fan
Mechanical and Environment	
Power Type	ATX 12V, 5V, 3.3V DC-in
Dimension	95.89 x 115.57 mm (3.8" x 4.6")
Storage Temp.	-55 to 90°C
Operating Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

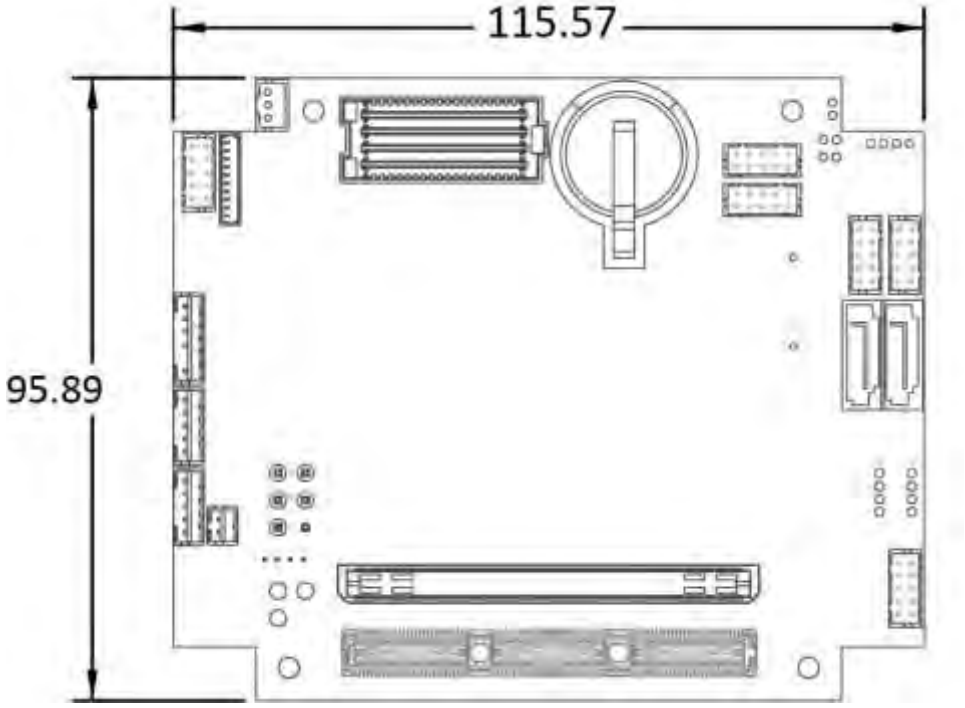
*All specifications and photos are subject to change without notice.

1.3 Board Placement





1.4 Mechanical Drawing

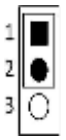
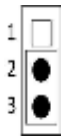


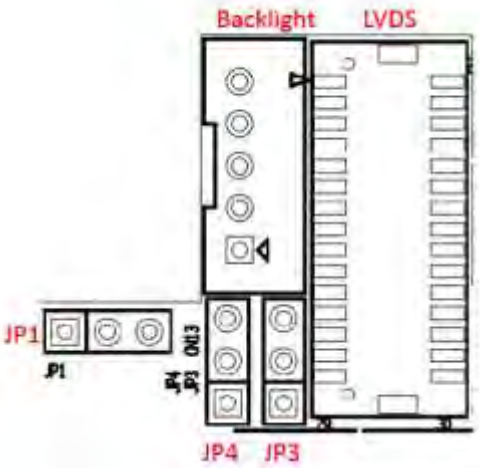
Chapter 2: Connectors definition

CN13: LCD Backlight

PIN	DEFINITION	
1	BKL_Power	
2	BKL_CTRL	
3	GND	
4	GND	
5	BKL-EN	

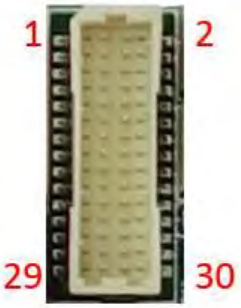
JP3: Backlight +5V/+3.3V Voltage Select

Jumper	Function description	Setting
1-2	5V	
2-3	12V	
Default setting: 2-3		

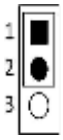
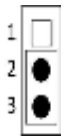


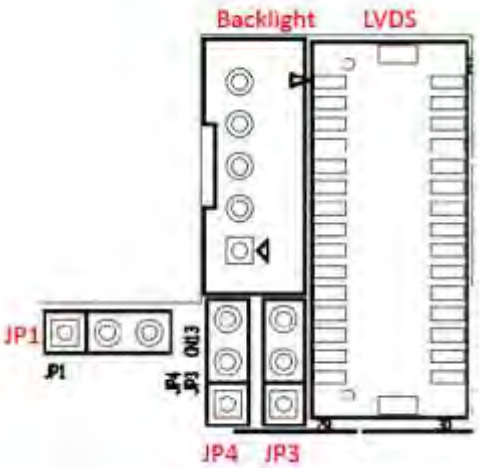
CN12: LVDS

PIN	DEFINITION	PIN	DEFINITION
1	LVDSB_CLK	2	GND
3	LVDSB_CLK#	4	LVDSA_DATA3
5	GND	6	LVDSA_DATA3#
7	LVDSB_DATA3	8	GND
9	LVDSB_DATA3#	10	LVDSA_CLK
11	LVDSB_DATA2	12	LVDSA_CLK#
13	LVDSB_DATA2#	14	GND
15	LVDSB_DATA1	16	LVDSA_DATA2
17	LVDSB_DATA1#	18	LVDSA_DATA2#
19	LVDSB_DATA0	20	LVDSA_DATA1
21	LVDSB_DATA0#	22	LVDSA_DATA1#
23	GND	24	LVDSA_DATA0
25	LVDS_SCLK	26	LVDSA_DATA0#
27	LVDS_SDATA	28	GND
29	LVCC0	30	LVCC0



JP4: LVDS +5V/+3.3V Voltage Select

Jumper	Function description	Setting
1-2	5V	
2-3	3.3V	
Default setting: 1-2		



CN16: VGA

PIN	DEFINITION	PIN	DEFINITION
1	RED	2	GND
3	GREEN	4	GND
5	BLUE	6	CRT_PLUG
7	HSYNC	8	VSYNC
9	DDC_CLK	10	DDC_DAT

CN11: COM1 RS232 (CN11)

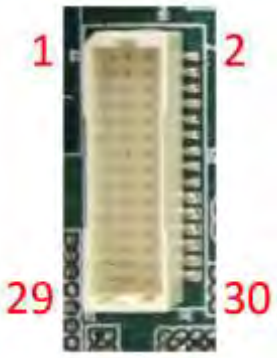
PIN	DEFINITION	PIN	DEFINITION
1	DCD-	2	RXD
3	TXD	4	DTR-
5	GND	6	DSR-
7	RTS-	8	CTS-
9	RI-	10	5V

CN2, CN3: SATA

PIN	DEFINITION
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

XP4: DVI-D

PIN	DEFINITION	PIN	DEFINITION
1	+V5S_DISP	2	GND
3	GND	4	TMDSD_SDA
5	TMDSD_HPD	6	TMDSD_SDA
7	GND	8	GND
9	TMDSD_DATA0+	10	TMDSD_DATA2+
11	TMDSD_DATA0-	12	TMDSD_DATA2-
13	GND	14	GND
15	TMDSD_DATA1+	16	MDSD_CL+
17	CLKTMDSD_DATA1-	18	MDSD_CLK-
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	26	GND
27	GND	28	GND
29	GND	30	GND



XP6, XP7: COM2/4 RS422

PIN	DEFINITION
1	TX-/RTXD-
2	TX+/RTXD+
3	RX+
4	RX-
5	GND

XP5: DIO

PIN	DEFINITION	PIN	DEFINITION
1	PD_OUT1	2	PD_OUT3
3	PD_OUT2	4	PD_OUT4
5	PD_IN1	6	PD_IN3
7	PD_IN2	8	PD_IN4
9	GND	10	GND

CN9, CN10: USB2.0

PIN	DEFINITION	PIN	DEFINITION
1	USB_VCC0	2	USB_VCC0
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND
9	GND	10	GND

FP1: FPE

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
1	DPC_HPD	2	DPC_AUX_P	3	NC	4	NC	5	NC	6	NC
11	GND	12	DPC_AUX_N	13	GND	14	NC	15	GND	16	NC
21	DPC_LANE1_P	22	+VDP_PWR	23	USB3_TX0P	24	GND	25	USB3_TX1P	26	GND
31	DPC_LANE1_N	32	DPC_LANE3_P	33	USB3_TX0N	34	USB3_RX0P	35	USB3_TX1N	36	USB3_RX1P
41	GND	42	DPC_LANE3_N	43	GND	44	USB3_RX0N	45	GND	46	USB3_RX1N
51	DPC_LANE0_P	52	GND	53	NC	54	GND	55	NC	56	GND
61	DPC_LANE0_N	62	DPC_LANE2_P	63	NC	64	NC	65	NC	66	NC
71	GND	72	DPC_LANE2_N	73	GND	74	NC	75	GND	76	NC
81	PEG_TXP0	82	GND	83	PEG_TXP2	84	GND	85	PEG_TXP4	86	GND
91	PEG_TXN0	92	PEG_TXP1	93	PEG_TXN2	94	PEG_TXP3	95	PEG_TXN4	96	PEG_TXP5
101	GND	102	PEG_TXN1	103	GND	104	PEG_TXN3	105	GND	106	PEG_TXN5
111	PEG_RXP_0	112	GND	113	PEG_RXP_2	114	GND	115	PEG_RXP_4	116	GND
121	PEG_RXN_0	122	PEG_RXP_1	123	PEG_RXN_2	124	PEG_RXP_3	125	PEG_RXN_4	126	PEG_RXP_5
131	GND	132	PEG_RXN_1	133	GND	134	PEG_RXN_3	135	GND	136	PEG_RXN_5
141	PEG_TXP8	142	GND	143	PEG_TXP10	144	GND	145	PEG_TXP12	146	GND
151	PEG_TXN8	152	PEG_TXP9	153	PEG_TXN10	154	PEG_TXP11	155	PEG_TXN12	156	PEG_TXP13
161	GND	162	PEG_TXN9	163	GND	164	PEG_TXN11	165	GND	166	PEG_TXN13
171	PEG_RXP_8	172	GND	173	PEG_RXP_10	174	GND	175	PEG_RXP_12	176	GND
181	PEG_RXN_8	182	PEG_RXP_9	183	PEG_RXN_10	184	PEG_RXP_11	185	PEG_RXN_12	186	PEG_RXP_13
191	GND	192	PEG_RXN_9	193	GND	194	PEG_RXN_11	195	GND	196	PEG_RXN_13

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
7	NC	8	NC	9	NC	10	NC
17	GND	18	NC	19	NC	20	NC
27	USB3_TX2P	28	GND	29	NC	30	LAN2_S1000LED
37	USB3_TX2N	38	USB3_RX2P	39	NC	40	LAN2_S100LED
47	GND	48	USB3_RX2N	49	GND	50	NC
57	USB3_TX3P	58	GND	59	NC	60	LAN1_LED_1000#
67	USB3_TX3N	68	USB3_RX3P	69	HDA_SPKR	70	LAN1_LED_100#
77	GND	78	USB3_RX3N	79	GND	80	NC
87	PEG_TXP6	88	GND	89	PEx16_x8_x4_2Clkp	90	CFG5
97	PEG_TXN6	98	USB3_RX3N	99	PEx16_x8_x4_2Clkn	100	CFG6
107	GND	108	PEG_TXN7	109	GND	110	PE_RST_FPE#
117	PEG_RXP_6	118	GND	119	PEx16_x8_x4_0Clkp	120	GND
127	PEG_RXN_6	128	PEG_RXP_7	129	PEx16_x8_x4_0Clkn	130	+V3.3A
137	GND	138	PEG_RXN_7	139	GND	140	+V3.3A
147	PEG_TXP14	148	GND	149	PEx16_x8_x4_1Clkp	150	GND
157	PEG_TXN14	158	PEG_TXP15	159	PEx16_x8_x4_1Clkn	160	GND
167	GND	168	PEG_TXN15	169	GND	170	NC
177	PEG_RXP_14	178	GND	179	F179	180	+V12S
187	PEG_RXN_14	188	PEG_RXP_15	189	F189	190	+V12S
197	GND	198	PEG_RXN_15	199	F199	200	+V12S

DIMMA1: XR-DIMM

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
1	VSS	35	M_A_DQ50	69	VSS	103	VDD
2	VSS	36	VSS	70	M_A_DQ34	104	M_A_A14
3	VSS	37	M_A_DQ53	71	M_A_DQ32	105	M_A_A11
4	VSS	38	M_A_DQ47	72	M_A_DQ38	106	VDD
5	M_A_DQ63	39	VSS	73	M_A_DQ36	107	M_A_A7
6	M_A_DQ59	40	M_A_DQ43	74	VSS	108	M_A_A12
7	M_A_DQ58	41	M_A_DQ46	75	VSS	109	VDD
8	M_A_DQ62	42	VSS	76	M_A_DQ71	110	M_A_A9
9	VSS	43	M_A_DQ42	77	M_A_DQ66	111	M_A_A5
10	VSS	44	+V_VREF_DQ_DIMM0	78	M_A_DQ70	112	VDD
11	M_A_DQS7#	45	VSS	79	M_A_DQ69	113	M_A_A4
12	GND	46	NC	80	VSS	114	M_A_A8
13	M_A_DQS7	47	M_A_DQS5#	81	VSS	115	VDD
14	VSS	48	VSS	82	GND	116	M_A_A6
15	VSS	49	M_A_DQS5	83	M_A_DQS8#	117	M_A_A2
16	M_A_DQ61	50	GND	84	VSS	118	VDD
17	M_A_DQ56	51	VSS	85	M_A_DQS8	119	VDD
18	M_A_DQ57	52	VSS	86	M_A_DQ64	120	M_A_A3
19	M_A_DQ60	53	M_A_DQ40	87	VSS	121	M_A_CLK_DDR1
20	VSS	54	M_A_DQ45	88	M_A_DQ65	122	M_A_A1
21	VSS	55	M_A_DQ44	89	M_A_DQ67	123	M_A_CLK_DDR1#
22	M_A_DQ49	56	M_A_DQ41	90	VSS	124	VDD
23	M_A_DQ48	57	VSS	91	M_A_DQ68	125	VDD
24	M_A_DQ51	58	VSS	92	DDR3_DRAMRST#	126	M_A_CLK_DDR0
25	M_A_DQ52	59	M_A_DQ33	93	VSS	127	+V_VREF_CA_DIMM0
26	VSS	60	M_A_DQ35	94	ERR_OUT_n	128	M_A_CLK_DDR0#
27	VSS	61	M_A_DQ37	95	+V0.75S	129	PAR_IN
28	GND	62	M_A_DQ39	96	+V0.75S	130	VDD
29	M_A_DQS6#	63	VSS	97	M_A_CKE0	131	VDD
30	VSS	64	VSS	98	M_A_CKE1	132	PM_EXTTS#0_R
31	M_A_DQS6	65	M_A_DQS4#	99	VDD	133	M_A_A10
32	M_A_DQ55	66	GND	100	VDD	134	M_A_A0
33	VSS	67	M_A_DQS4	101	M_A_BS2	135	M_A_BS0
34	M_A_DQ54	68	VSS	102	M_A_A15	136	VDD

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
137	VDD	171	VSS	205	M_A_DQ13	239	+V0.75S
138	M_A_BS1	172	VSS	206	M_A_DQ6	240	+V0.75S
139	M_A_WE#	173	M_A_DQ19	207	VSS		
140	VDD	174	M_A_DQ18	208	M_A_DQ2		
141	M_A_CAS#	175	M_A_DQ22	209	M_A_DQ7		
142	M_A_RAS#	176	M_A_DQ23	210	VSS		
143	VDD	177	VSS	211	M_A_DQ3		
144	M_A_CS0#	178	VSS	212	GND		
145	M_A_CS1#	179	M_A_DQS2#	213	VSS		
146	VDD	180	GND	214	VSS		
147	M_A_ODT1	181	M_A_DQS2	215	M_A_DQS0#		
148	M_A_ODT0	182	VSS	216	M_A_DQ1		
149	VDD	183	VSS	217	M_A_DQS0		
150	M_A_A13	184	M_A_DQ17	218	M_A_DQ0		
151	NC	185	M_A_DQ16	219	VSS		
152	VDD	186	M_A_DQ21	220	VSS		
153	VSS	187	M_A_DQ20	221	M_A_DQ4		
154	NC	188	VSS	222	+V3.3S		
155	M_A_DQ24	189	VSS	223	M_A_DQ5		
156	VSS	190	M_A_DQ11	224	SA0_DIM0		
157	M_A_DQ27	191	M_A_DQ14	225	VSS		
158	M_A_DQ29	192	M_A_DQ8	226	SA1_DIM0		
159	VSS	193	M_A_DQ15	227	SA2_DIM0		
160	M_A_DQ25	194	VSS	228	SMB_CLK_M		
161	M_A_DQS3#	195	VSS	229	VSS		
162	VSS	196	GND	230	SMB_DATA_M		
163	M_A_DQS3	197	M_A_DQS1#	231	NC		
164	GND	198	VSS	232	VSS		
165	VSS	199	M_A_DQS1	233	NC		
166	VSS	200	M_A_DQ12	234	NC		
167	M_A_DQ31	201	VSS	235	VSS		
168	M_A_DQ28	202	M_A_DQ9	236	NC		
169	M_A_DQ30	203	M_A_DQ10	237	+V0.75S		
170	M_A_DQ26	204	VSS	238	VSS		

StackPC TOP CONNECTOR

PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION	PIN	DEFINITION
1	USB_OC#_4_5	2	ARST_HEADER#	53	STK0_WAKE-	54	STK1_SATA_ACT-
3	+V3.3S	4	+V3.3S	55	-TYPE_DETECT	56	GND
5	USBD1+	6	USBD0+	57	LAN1_MDI0P	58	PCIEX4_TXP4
7	USBD1-	8	USBD0-	59	LAN1_MDI0P	60	PCIEX4_TXN4
9	GND	10	GND	61	GND	62	GND
11	PCIE_TXP1_1	12	PCIE_TXP2	63	LAN2_MDIP0	64	PCIEX4_TXP5
13	PCIE_TXN1_1	14	PCIE_TXN2	65	LAN2_MDIN0	66	PCIEX4_TXN5
15	GND	16	GND	67	GND	68	GND
17	PCIE_TXP1_2	18	PCIE_TXP1_3	69	LAN1_MDI1P	70	PCIEX4_TXP6
19	PCIE_TXN1_2	20	PCIE_TXN1_3	71	LAN1_MDI1N	72	PCIEX4_TXN6
21	GND	22	GND	73	GND	74	GND
23	PCIE_RXP1_1	24	PCIE_RXN2	75	LAN2_MDI1P	76	PCIEX4_TXP7
25	PCIE_RXN1_1	26	PCIE_RXP2	77	LAN2_MDI1N	78	PCIEX4_TXN7
27	GND	28	GND	79	LAN2_ALED	80	LAN1_LED_LNK#_ACT
29	PCIE_RXP1_2	30	PCIE_RXP1_3	81	SATATXP3	82	SATATXP2
31	PCIE_RXN1_2	32	PCIE_RXN1_3	83	SATATXN3	84	SATATXN2
33	GND	34	GND	85	GND	86	GND
35	CLK_PCIE_2P_1	36	CLK_PCIE_3P	87	USBD3+	88	USBD2+
37	CLK_PCIE_2N_1	38	CLK_PCIE_3N	89	USBD3-	90	USBD2-
39	+5VSB	40	+5VSB	91	GND	92	GND
41	CLK_PCIE_2P_2	42	CLK_PCIE_2P_3	93	USBD5+	94	USBD4+
43	CLK_PCIE_2N_2	44	CLK_PCIE_2N_3	95	USBD5-	96	USBD4-
45	GND	46	ATXPWOK	97	GND	98	GND
47	SMB_DATA	48	CLK_PCIE_4P	99	1.8V_LAN_M	100	EHC_0_CTREF
49	SMB_CLK	50	CLK_PCIE_4N	101	SPI_SI_F	102	sPI_CE1#_F
51	SMB_ALERT#	52	PS_ON#	103	SPI_MISO_AA	104	NC

PIN	DEFINITION	PIN	DEFINITION
105	0RTSSTK2_SPISCK	106	CLK_PCI_ConnA
107	NC	108	GND
109	LAN1_MDI2P	110	PCIEX4_RXP4
111	LAN1_MDI2N	112	PCIEX4_RXN4
113	GND	114	GND
115	LAN2_MDI2P	116	PCIEX4_RXP5
117	LAN2_MDI2N	118	PCIEX4_RXN5
119	GND	120	GND
121	LAN1_MDI3P	122	PCIEX4_RXP6
123	LAN1_MDI3N	124	PCIEX4_RXN6
125	GND	126	GND
127	LAN2_MDI3P	128	PCIEX4_RXP7
129	LAN2_MDI3N	130	PCIEX4_RXN7
131	PE_PRSNT1_A-	132	PE_PRSNT0_A
133	SATARXP3	134	SATARXP2
135	SATARXN3	136	SATARXN2
137	GND	138	GND
139	UART6_SOUT	140	UART5_SOUT
141	UART6_SIN	142	UART5_SIN
143	GND	144	GND
145	LPC_AD0	146	PCH_DRQ#1_A
147	LPC_AD1	148	INT_SERIRQ
149	GND	150	GND
151	LPC_AD2	152	LPC_FRAME#
153	LPC_AD3	154	+V3.3A_RTC
155	FBUS_1RTS-	156	FBUS_0RTS

CPU FAN1: FAN

PIN	DEFINITION
1	FAN Speed
2	FAN VCC
3	GND

CN15: COM3 RS232

PIN	DEFINITION	PIN	DEFINITION
1	S_DCD#3	2	S_RXD3
3	S_TXD3	4	S_DTR#3
5	GND	6	S_DSR#3
7	S_RTS#3	8	S_CTS#3
9	S_RI#3	10	+V5S

CN1: LPC

PIN	DEFINITION
1	GND
2	GND
3	+V3.3S
4	LPC_AD0
5	LPC_AD1
6	LPC_AD2
7	LPC_AD3
8	LPC_FRAME#
9	LPC_RST#
10	LPC_CLK

XP3: PS/2

PIN	DEFINITION
1	KBCLK
2	KBDATA
3	MSCLK
4	GND
5	+5V
6	MSDATA

XP8: Front Panel

PIN	DEFINITION
1	PWR_LED+
2	PWR_LED-
3	HWRST#
4	GND
5	PWR_BTN

XP1: Audio in/out

PIN	DEFINITION
1	Line In L
2	Line In R
3	GND
4	Line Out R
5	Line Out L

XP2: MIC

PIN	DEFINITION
1	MIC_IN
2	AUDIO_GND

STACKPWR_1

PIN	DEFINITION	PIN	DEFINITION
1	GND	2	GND
3	+V5	4	+V5

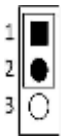
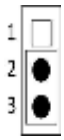
STACKPWR_2

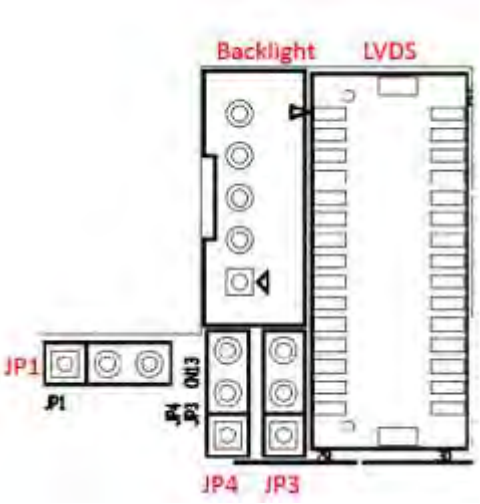
PIN	DEFINITION
1	+5VSB
2	Power Good
3	PSON#
4	GND

STACKPWR_3

PIN	DEFINITION	PIN	DEFINITION
1	GND	4	+3.3V
2	GND	5	+12V
3	GND	6	+12V

JP1: Clear CMOS

Jumper	Function description	Setting
1-2	Normal operating	
2-3	Short 3 seconds to Clear CMOS	
Default setting: 1-2		



Chapter 3: Getting Started

3.1 Installing System Memory

The OXY5535B supports 1 x DDR3 1333/1600 MHz XR-DIMM w/ECC up to 8 GB

Disconnect all power supplies to the board before installing a memory module to prevent damage to the board and memory module.

To install a memory module:

1. Located the memory module slots on the motherboard.

2. Align the memory module with the socket to make sure the notch aligns with the slot key on the socket.

Chapter 4: AMI BIOS UTILITY

This chapter provides users with detailed descriptions on how to set up a basic system configuration through the AMI BIOS setup utility.

4.1 Starting

To enter the setup screens, perform the following steps:

- Turn on the computer and press the <Del> key immediately.
- After the <Del> key is pressed, the main BIOS setup menu displays. Other setup screens can be accessed from the main BIOS setup menu, such as the Chipset and Power menus.

4.2 Navigation Keys

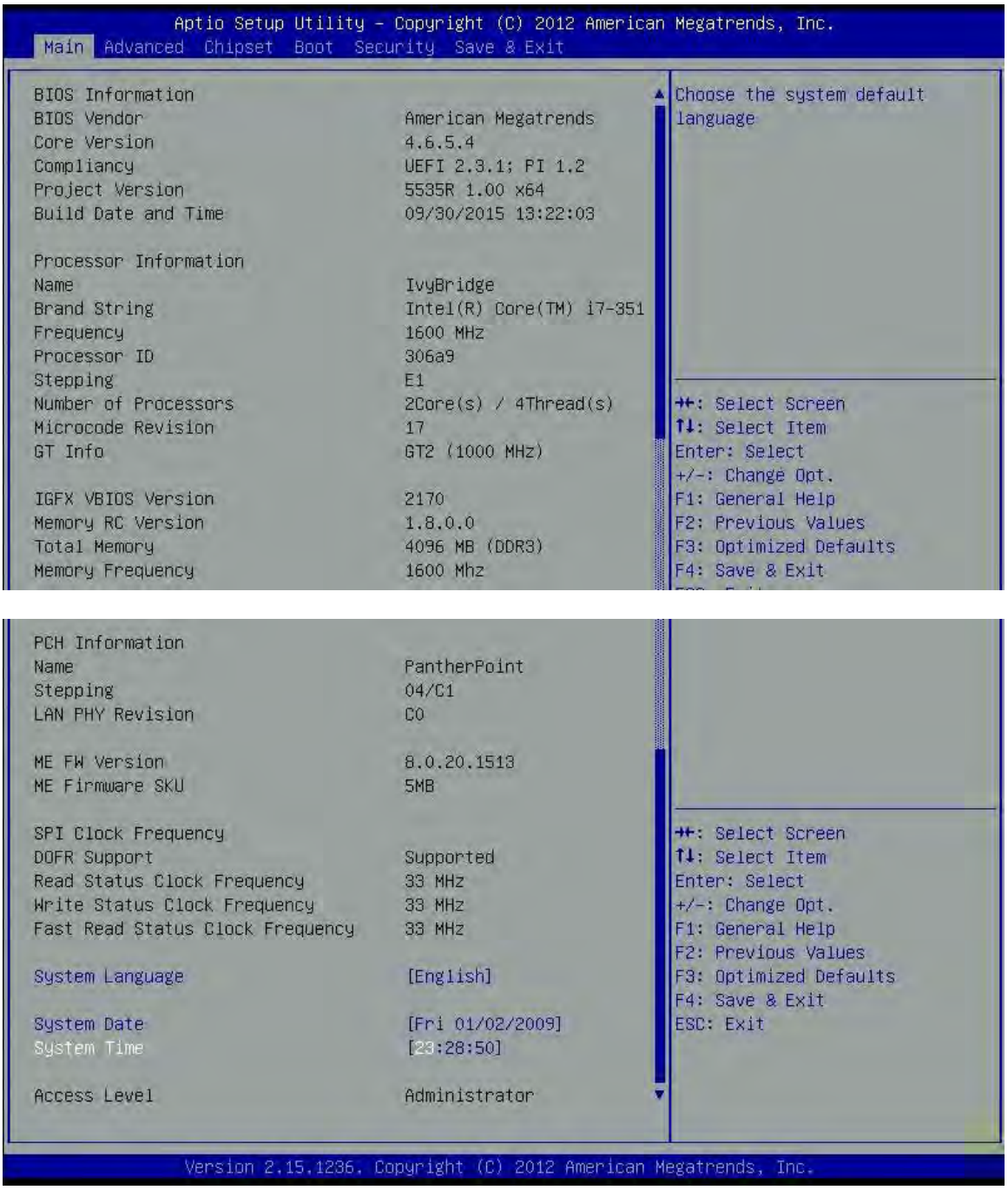
The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
Some of the hot keys are <F1>, <F10>, <Enter>, <ESC>, and <Arrow> keys.

Some of the navigation keys may differ from one screen to another.

Left/Right	The Left and Right <Arrow> keys moves the cursor to select a menu.
Up/Down	The Up and Down <Arrow> keys moves the cursor to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys changes the field value of a particular setup setting.
Tab	The <Tab> key selects the setup fields.
F1	The <F1> key displays the General Help screen.
F10	The <F10> key saves any changes made and exits the BIOS setup utility.
Esc	The <Esc> key discards any changes made and exits the BIOS setup utility.
Enter	The <Enter> key displays a sub-screen or changes a selected or highlighted option in each menu.

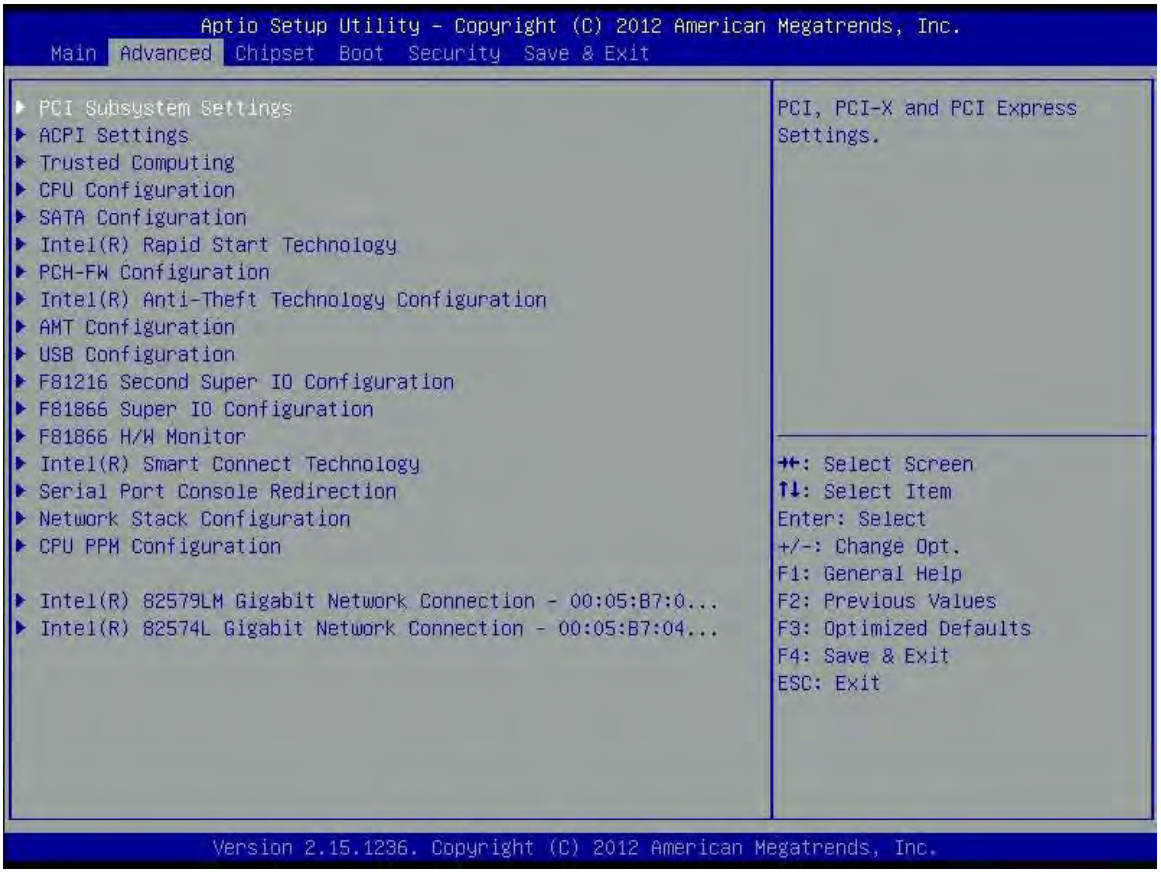
4.3 Main Menu

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



4.4 Advanced Menu

The Advanced Menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference. ***Setting incorrect field values may cause the system to malfunction.***



PCI Subsystem Settings: PCI, PCI-X and PCI Express settings

ACPI Settings: System ACPI parameters

Trusted Company: Trusted company settings

CPU Configuration: CPU configuration settings

SATA Configuration:SATA device options settings

Intel Rapid Start Technology: Intel Rapid Start Technology

PCH-FW Configuration: Configure management engine technology parameters

Intel Anti-Theft Technology Configuration: Disabling Intel AT allow user to login platform. This is strictly for testing only. This does not disable Intel AT services in ME.

AMT Configuration: Configure active management technology parameters.

USB Configuration:USB configuration parameters.

F81216 Second Super IO Configuration: System second Super IO chip parameters.

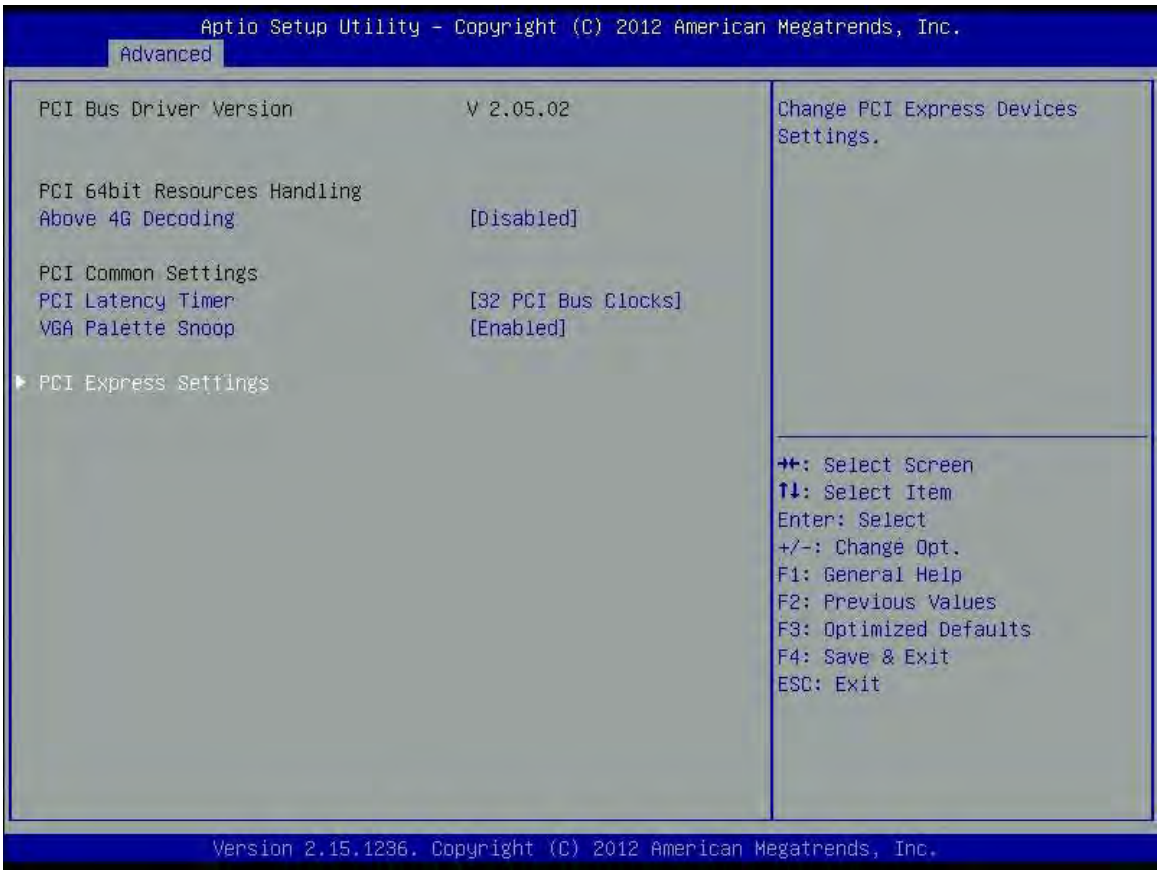
F81866 Super IO Configuration: System Super IO chip parameters.

F81866 H/W Monitor: Monitor hardware status.

Intel Smart Connect Technology: Intel smart connect technology settings.
Serial Port Console Redirection: Serial port console redirection
Network Stack Configuration: Network Stack settings
CPU PPM Configuration: CPU PPM Configuration parameters
Intel 82579LM Gigabit Network Connection: Configure Gigabit Ethernet device parameters
Intel 82574L Gigabit Network Connection: Configure Gigabit Ethernet device parameters

4.4.1 PCI Subsystem Settings

PCI, PCI-X and PCI Express Settings



PCI 64bit Resources Handling

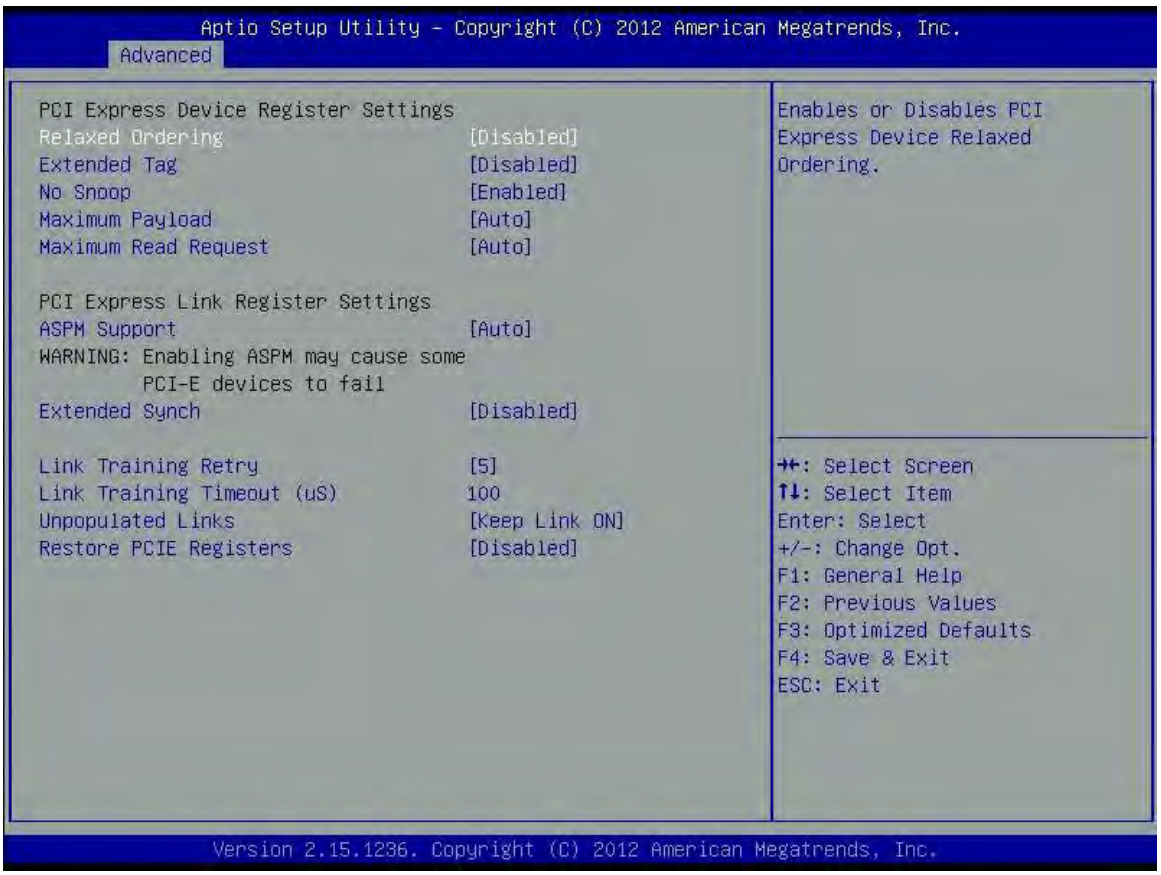
Above 4G Decoding: Enables or Disables 64bit capable Devices to be Decoded in above 4G address Space (Only if system supports 64G bit PCI Decoding).

PCI Common Settings

PCI Latency Timer: Value to be programmed into PCI latency timer register.
VGA Palette Snoop: Enables or disables VGA palette registers snooping.

4.4.1.1 PCI Express Settings

Change PCI express devices settings



PCI Express Device Register Settings

Relaxed ordering: Enables or disables PCI Express Device Relaxed ordering.

Extended Tag: If enabled allows device to use 8-bit tag field as a requester.

No Snoop: Enables or disables PCI Express Devices no Snoop option.

Maximum Payload: Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.

Maximum Read Request: Set Maximum Read Request. Size of PCI Express Device or allow system BIOS to select the value.

PCI Express Link Register Settings

ASPM Support: Set the ASPM Level1:

force L0s – Force all links to L0s State,

Auto – BIOS auto configure,

DISABLE – Disables ASPM

Warning: Enabling ASPM may cause some PCI-E devices to fail.

Extended Synch: If enabled allows generation of extended synchronization patterns.

Link Training : Defines number of retry attempts software will take to retrain the link if previous training attempt was successful.

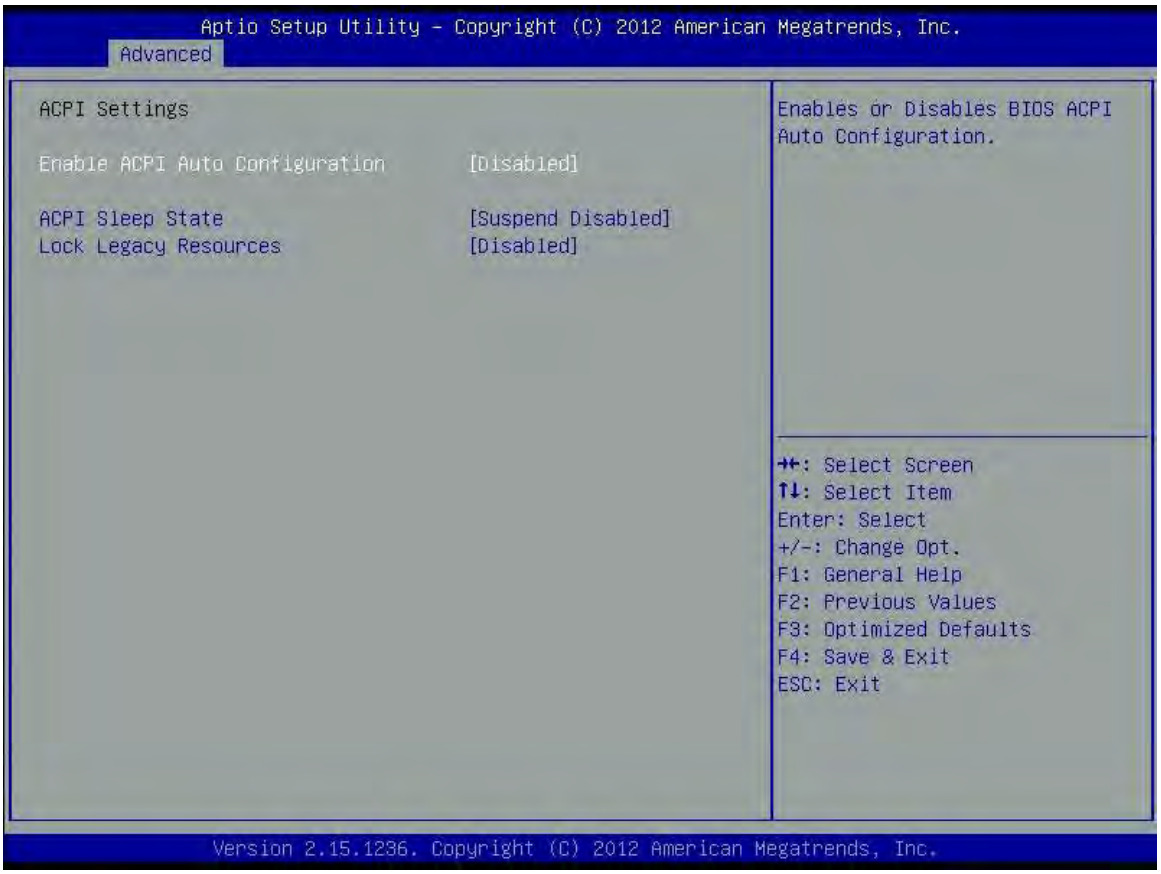
Link Training Timeout (uS): Defines number of Microseconds software will wait before polling Link Training bit in Link Status register. Value range from 10 to 10000 uS.

Unpopulated Links: In order to save power, software will disable unpopulated PCI Express links, if this option set to disable link.

Restore PCIE Register: On non-PCI Express aware 0S's (Pre Windows Vista) some devices may not be correctly reinitialized after S3. Enabling this restores PCI Express device configurations on S3. Warning: Enabling this may cause issues with other hardware after S3 resume.

4.4.2 ACPI Settings

System ACPI Parameters.

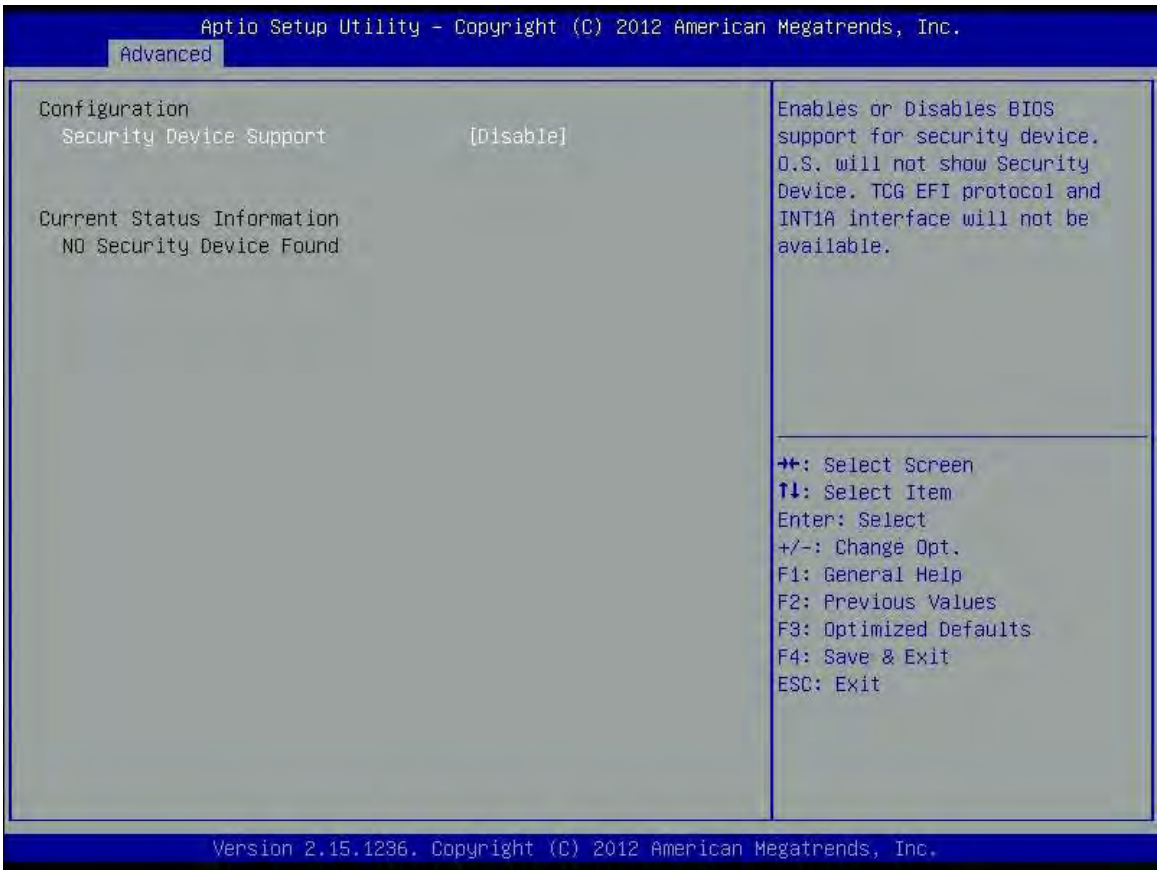


Enable ACPI Auto Configuration: Enables or disables BIOS ACPI auto configuration.

ACPI Sleep State: Select the ACPI sleep state the system will enter when the suspend button is pressed.

Lock Legacy Resources: Enables or Disables System Lock of Legacy Resources.

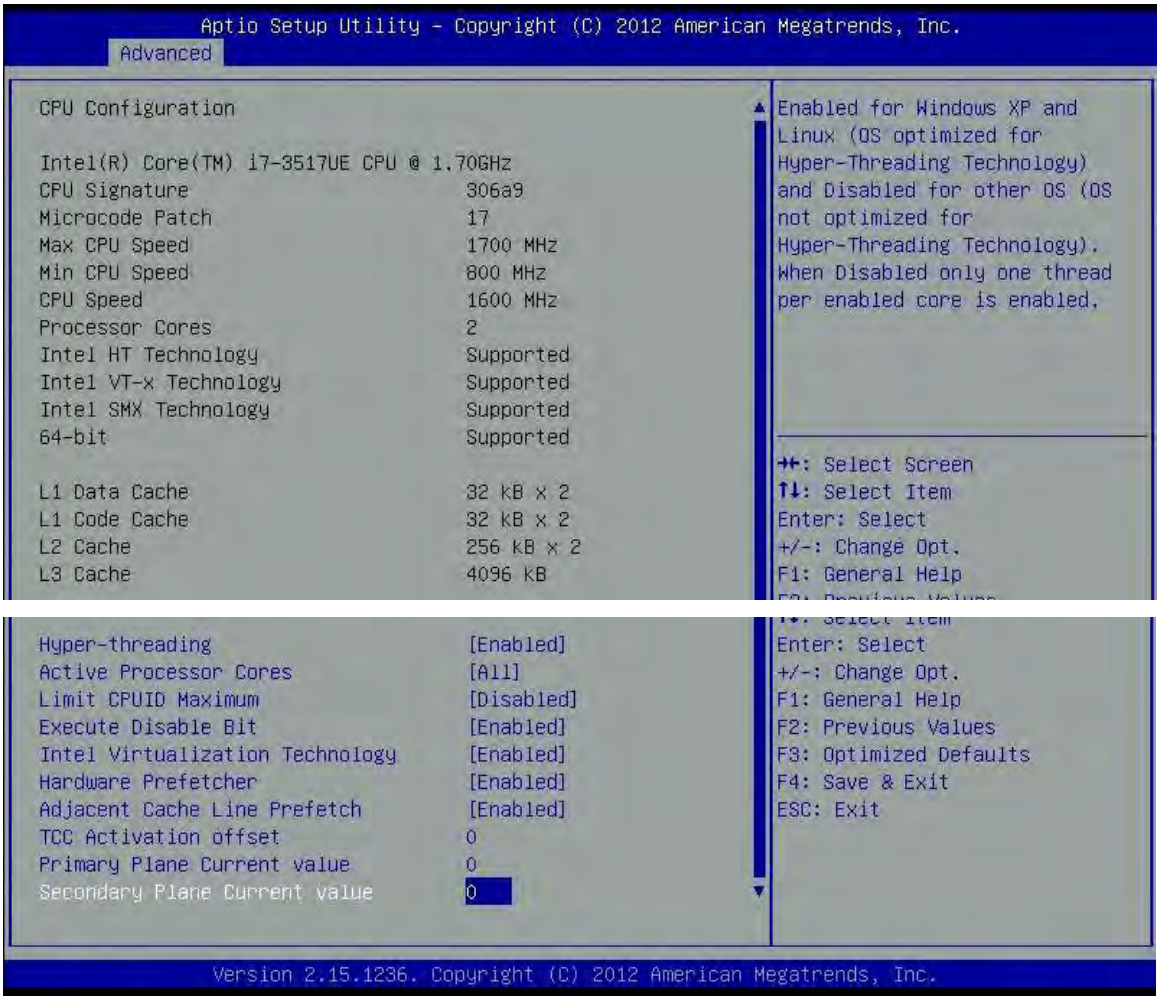
4.4.3 Trusted Computing



Security: Enables or disables BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

4.4.4 CPU Configuration

This section is used to configure the CPU.



Hyper-threading: Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When disabled only one thread per enabled core is enabled.

Active Processor Cores: Number of cores to enable in each processor package.

Limit CPUID Maximum: Disabled for Windows XP.

Execute Disable Bit: XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Sever 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)

Intel Virtualization Technology: When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hardware Prefetcher: To turn on/off the Mid Level Cache (L2) streamer prefectcher

Adjacent Cache Line Prefetche: To turn on/off prefectching of adjacent cache lines

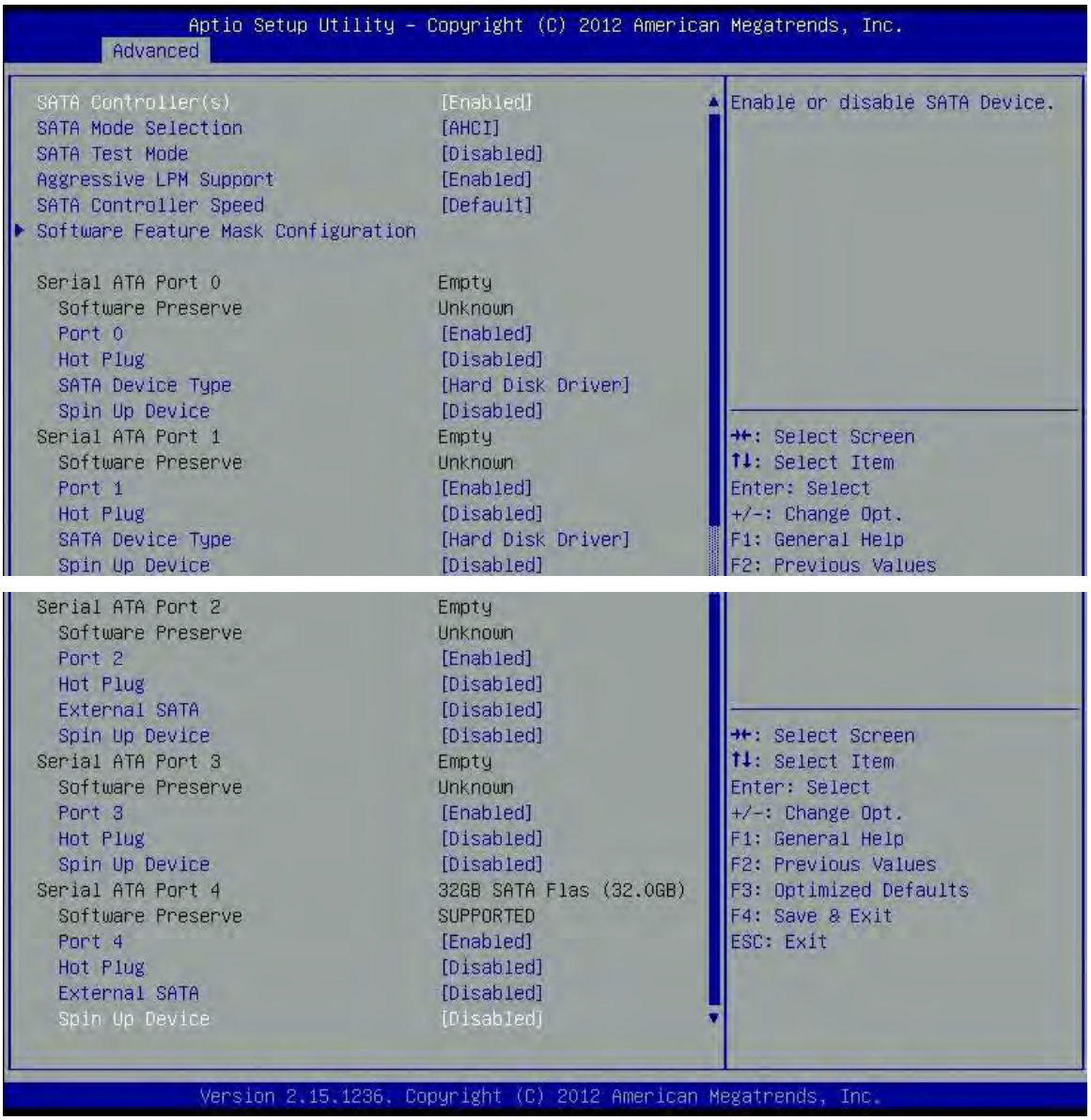
TCC Activation Offset: Offset from the factory TCC activation temperature

Primary Plane Current Value: The Maximum instantaneous current allow for primary plane

Secondary Plane Current Value: The Maximum instantaneous current allow for secondary plane

4.4.5 SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s): Enable or disable SATA device.

SATA Mode Selection: Determines how SATA controller(s) operate. The options are: IDE, AHCI, RAID

SATA Test Selection: Enable or disable Test Mode

Aggressive LPM Support: Enable PCH to aggressively enter link power state.

SATA Controller Speed: Indicates the maximum speed the SATA controllers can support. The options are default, Gen1, Gen2, Gen3.

Software Feature Mask Configuration: RADI OROM/RST driver will refer to the SWFW configuration to enable or disable the storage features.

Serial ATA Port 0~4

Port 0~4: Enable or disable SATA port

Hot Plug: Designates this port as Hot Pluggable.

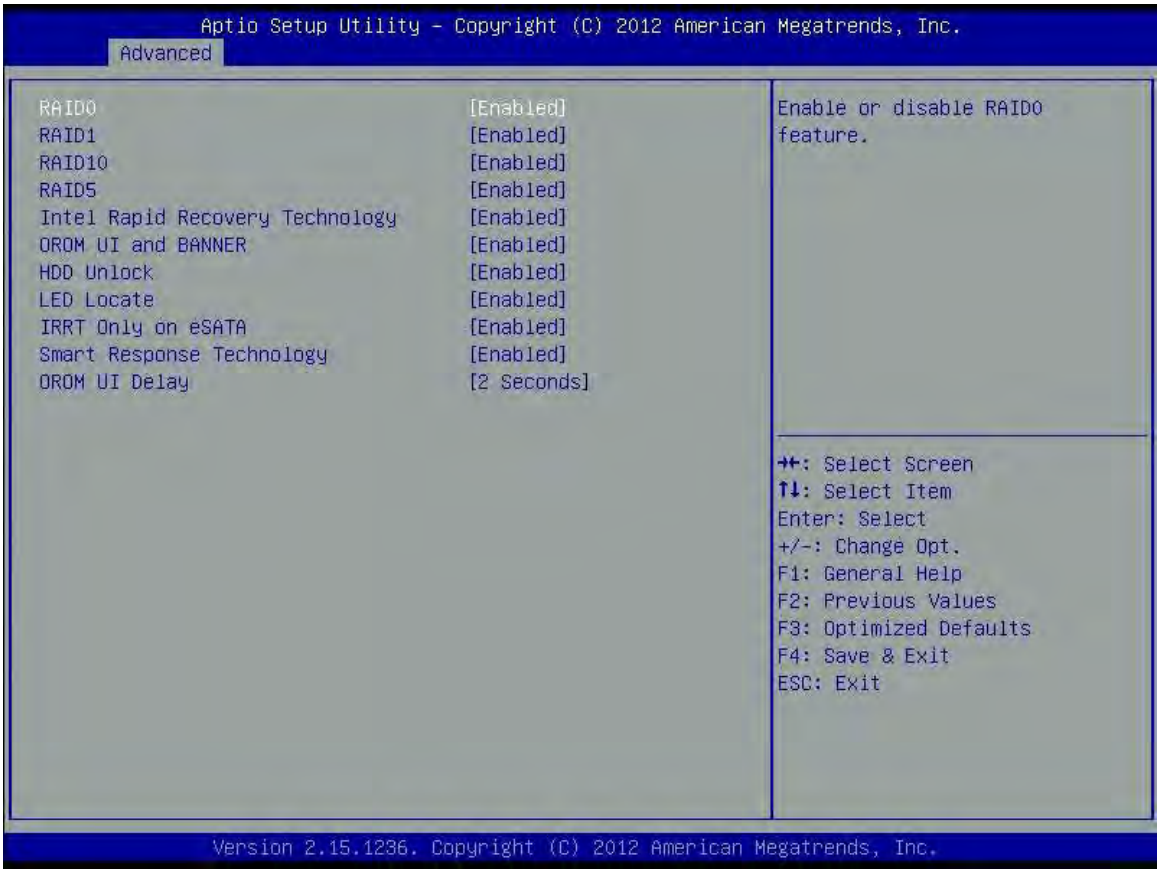
External SATA: External SATA support.

SATA device type: Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

Spin Up Device: On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.

4.4.5.1 Software Feature Mask Configuration

RADI OROM/RST driver will refer to the SWFW configuration to enable or disable the storage features.



RAID0: Enable or disable RAID0 feature.

RAID1: Enable or disable RAID1 feature.

RAID10: Enable or disable RAID10 feature.

RAID5: Enable or disable RAID5 feature.

Intel Rapid Recovery Technology: Enable or disable Intel Rapid Recovery Technology.

OROM UI and Banner: If enabled, then the OROM UI is shown. Otherwise, no OROM banner or information will be displayed if all disks and RAID volumes are Normal.

HDD unlock: If enabled, indicates that the HDD password unlock in the OS is enabled.

LED Locate: If enabled, indicates that the LED/SGPIO hardware is attached and ping to locate features is enabled on the OS.

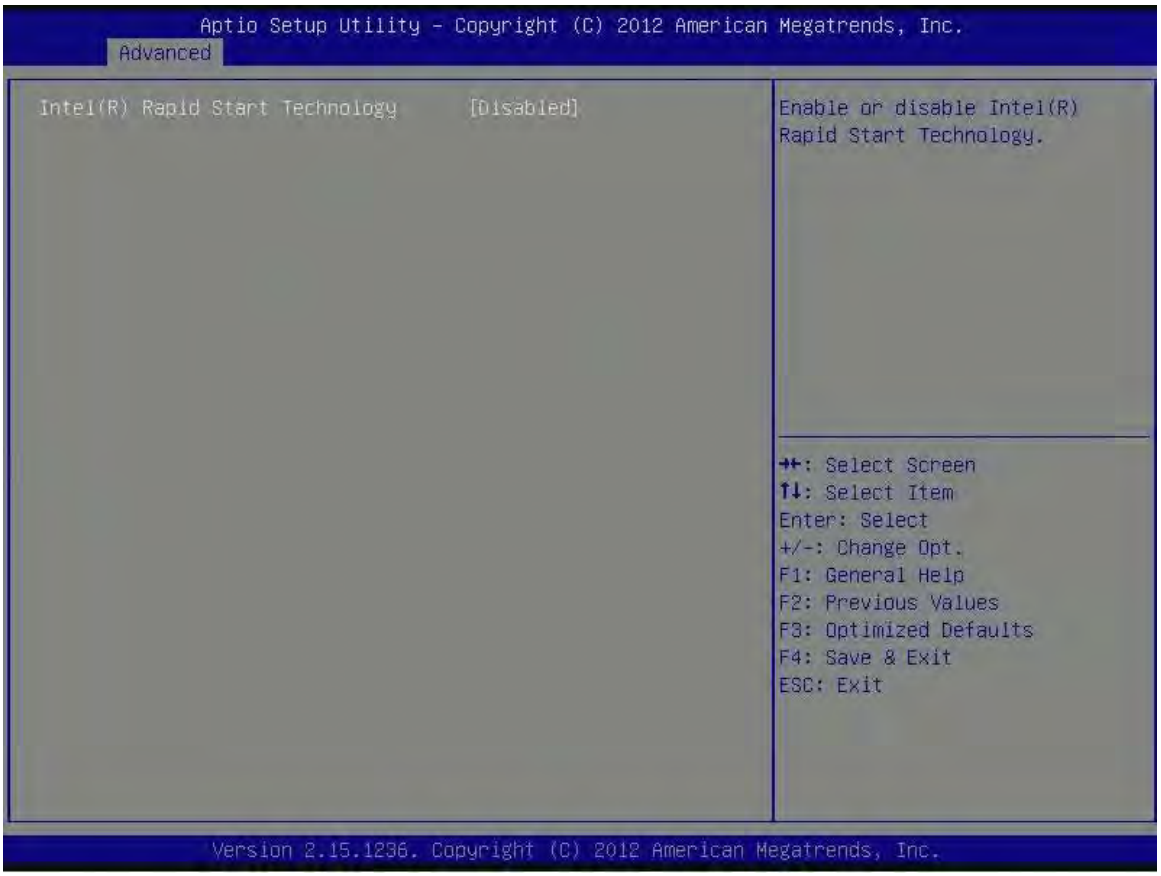
IRRT Only on eSATA: If enabled, then only IRRT volumes can span internal and eSATA drives. If disabled, then any RAID volume can span internal and eSATA drives.

Smart Response Technology: Enabled or disable Smart Response Technology.

OROM UI Delay: If enabled, indicates the delay of the OROM UI Splash Screen in a normal status. The options are 2 seconds, 4 seconds, 6 seconds, 8 seconds.

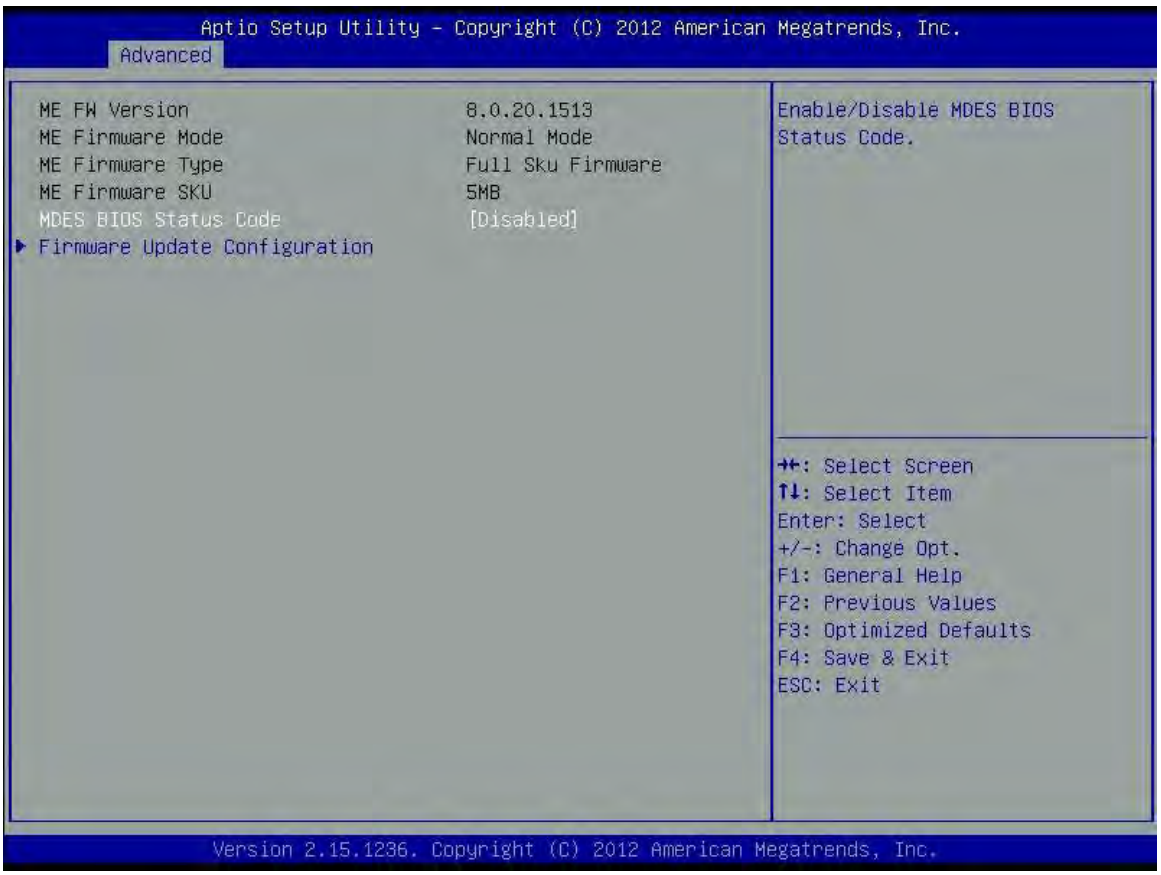
4.4.6 Intel® Rapid Start Technology

Enable or disable Intel® Rapid Start Technology



4.4.7 PCH-FW Configuration

Configure management engine technology peremeters.

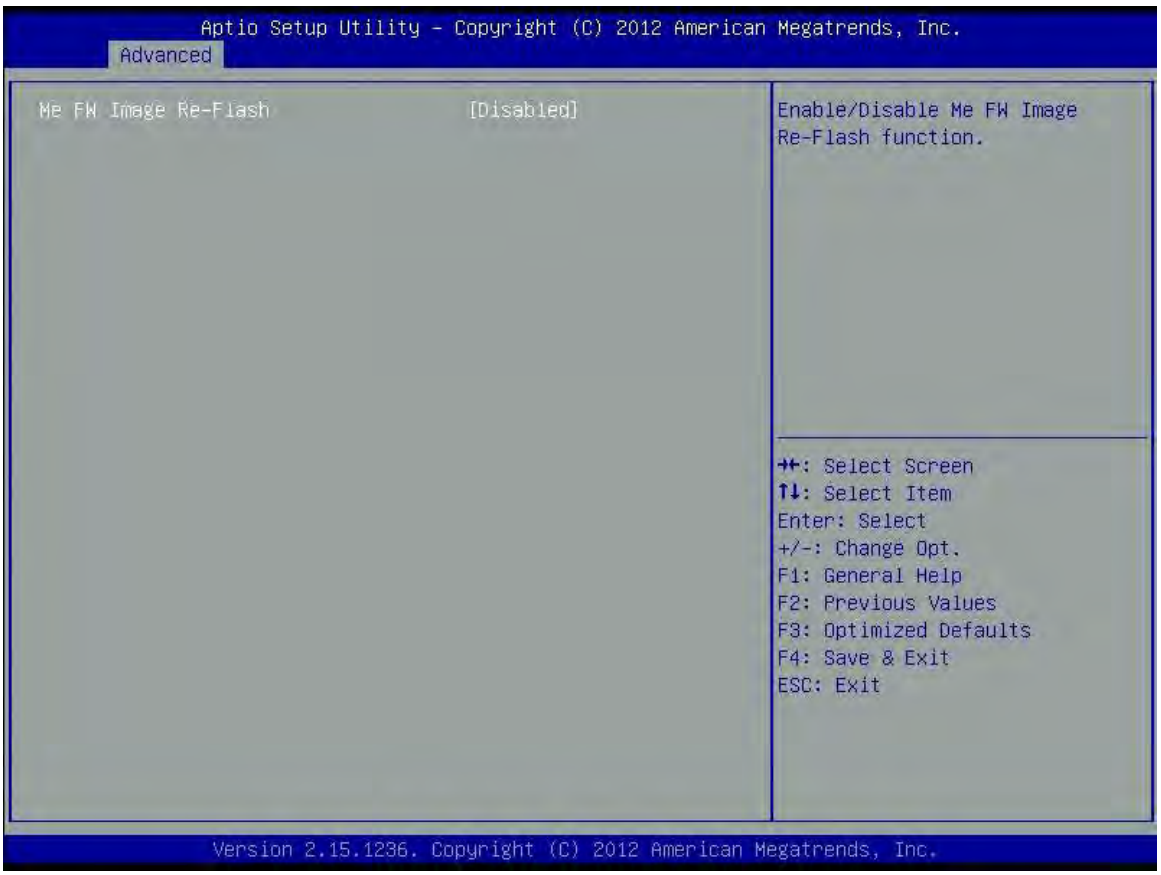


MDES BIOS Status Code: Enable/Disable MDES BIOS Status Code.

Firmware Update Configuration: Configure Management Engine Technology Parameters.

4.4.7.1 Firmware Update Configuration

Configure Management Engine Technology Parameters.

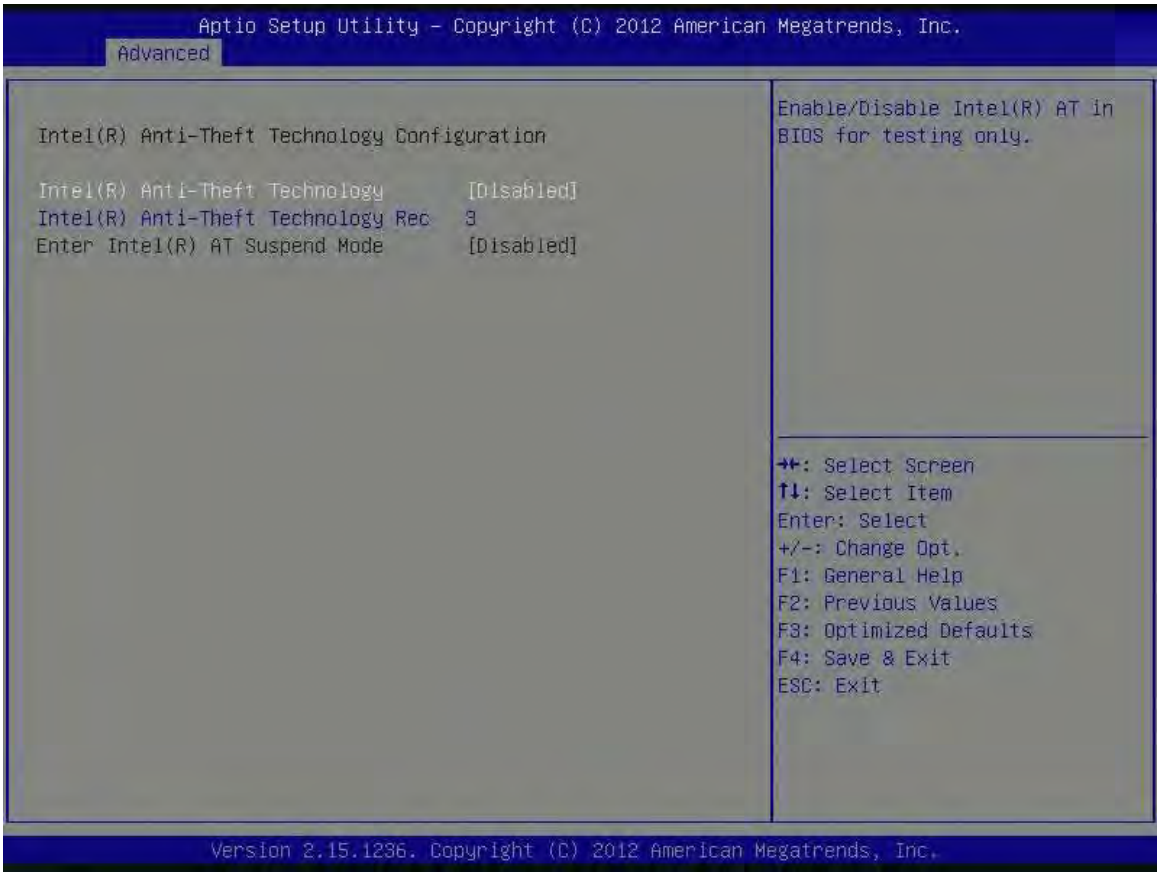


Me FW Image Re-Flash: Enable/Disable Me FW Image Re-Flash function.

4.4.8 Intel Anti-Theft Technology Configuration

Disabling Intel AT allow user to login to platform. This is strictly for testing only.

This does not disable Intel AT services in ME.

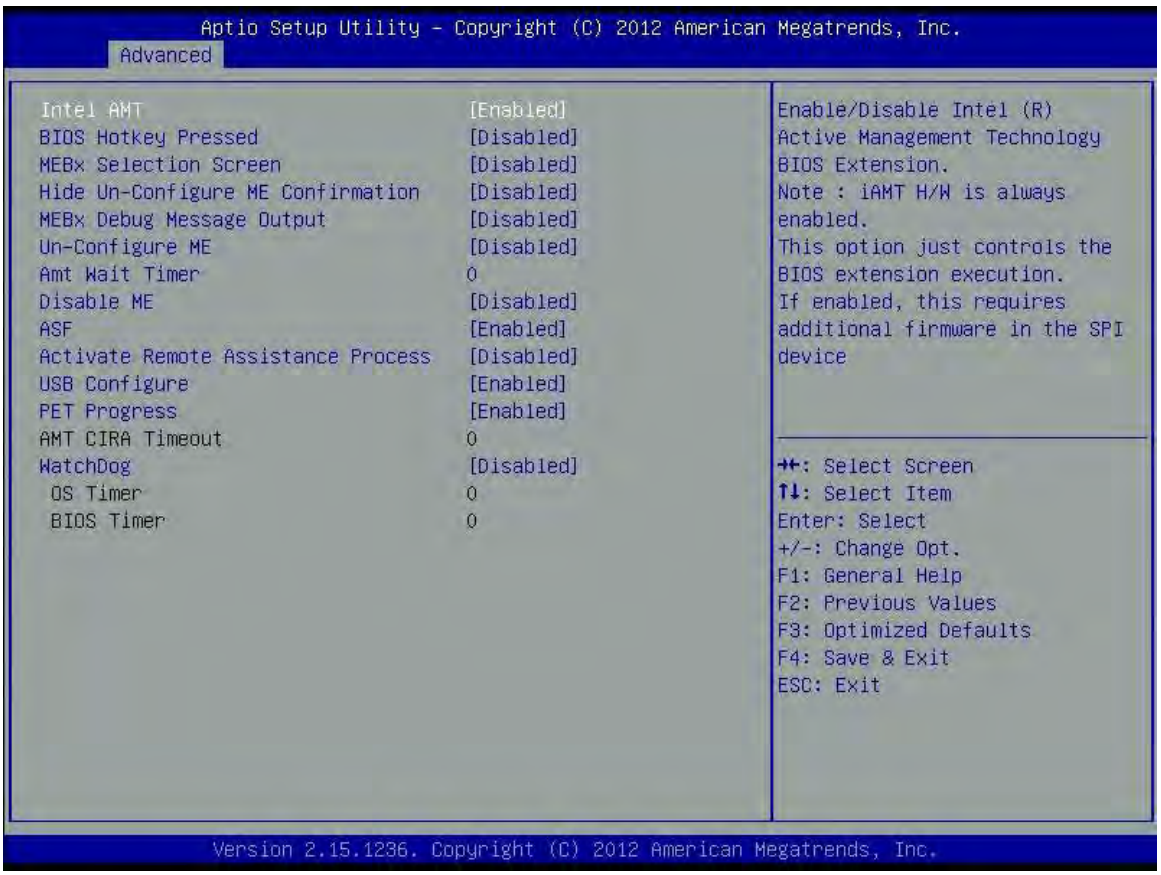


Intel Anti-Theft Technology: Enable/disable Intel AT in BIOS for testing only.

Intel Anti-Theft Technology Rec 3: Set the number of times Recovery attempted will be allowed.

4.4.9 AMT Configuration

This section is used to configure Active Management Technology (AMT) options



Intel AMT: Enable/Disable Intel Active Management Technology BIOS Extension.

Note: iAMT H/W is always enabled.

This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device.

BIOS Hotkey Pressed: OEMFlag Bit 1: Enable/Disable BIOS hotkey press.

MEBx Selection Screen: OEMFlag Bit 2: Enable/Disable MEBx selection screen.

Hide Un-Configure ME Confirmation: OEMFlag Bit 6: Hide Un-Configure ME without password Configuration prompt.

MEBx Debug Message Output: OEMFlag Bit 14: Enable MEBx debug message output.

Un-Configure ME: OEMFlag Bit 15: Un-Configure ME without password.

AMT Wait Timer: Set Timer to wait before sending ASF_GET_BOOT_OPTIONS.

Disable ME: Set ME to soft temporary disabled.

ASF: Enable/Disable alert specification format.

Activate remote assistance process: trigger CIBA boot.

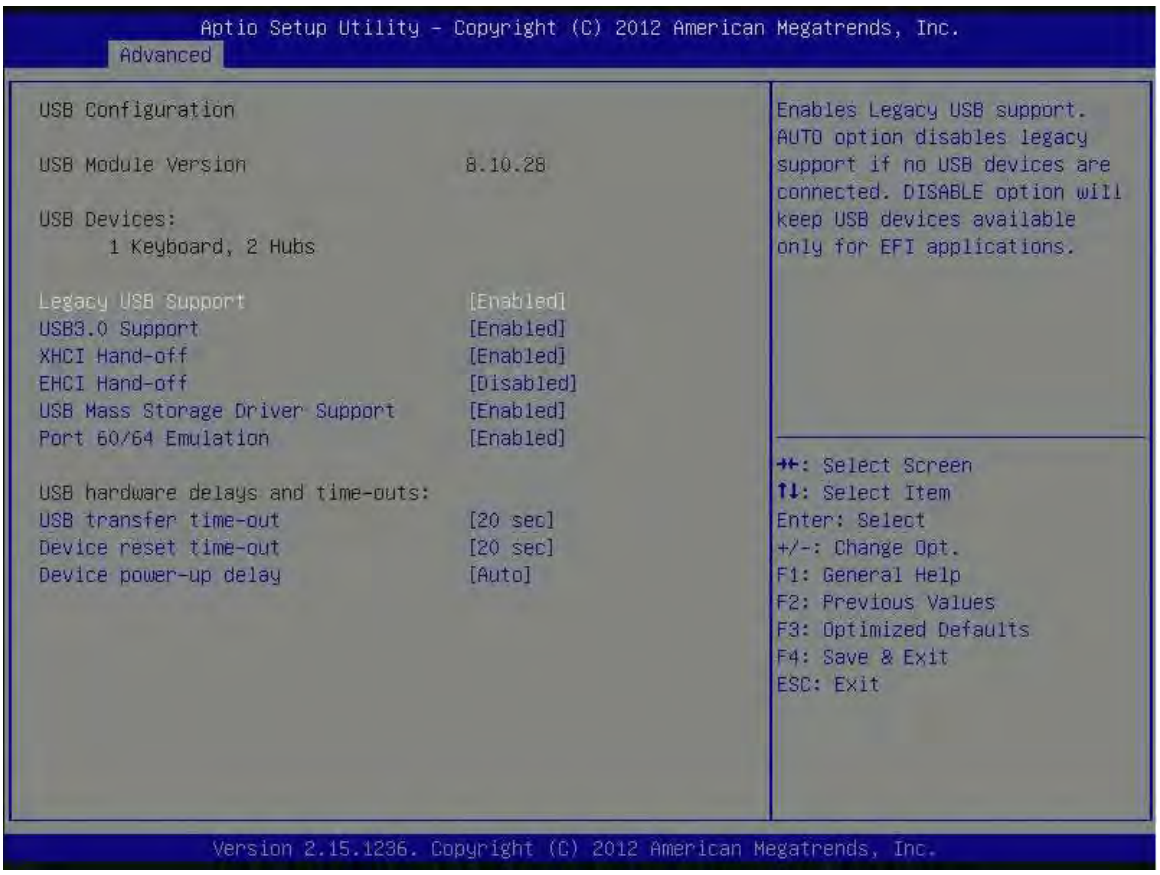
USB Configure: Enable/Disable USB Configure function.

PET Progress: User can Enable/Disable PET Events progress to receive PET events or not.

WatchDog: Enable/Disable WatchDog Timer.

4.4.10 USB Configuration

This section is used to configure the USB



Legacy USB Support: Enables Legacy USB support.

AUTO option disables legacy support if no USB devices are connected.

DISABLE option will keep USB devices available only for EFI applications.

USB3.0 Support: Enable/Disable USB3.0 (XHCI) Controller support.

XHCI Hand-off: This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

EHCI Hand-off: This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Port 64/60 Emulation: Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

USB Hardware delays and time-outs:

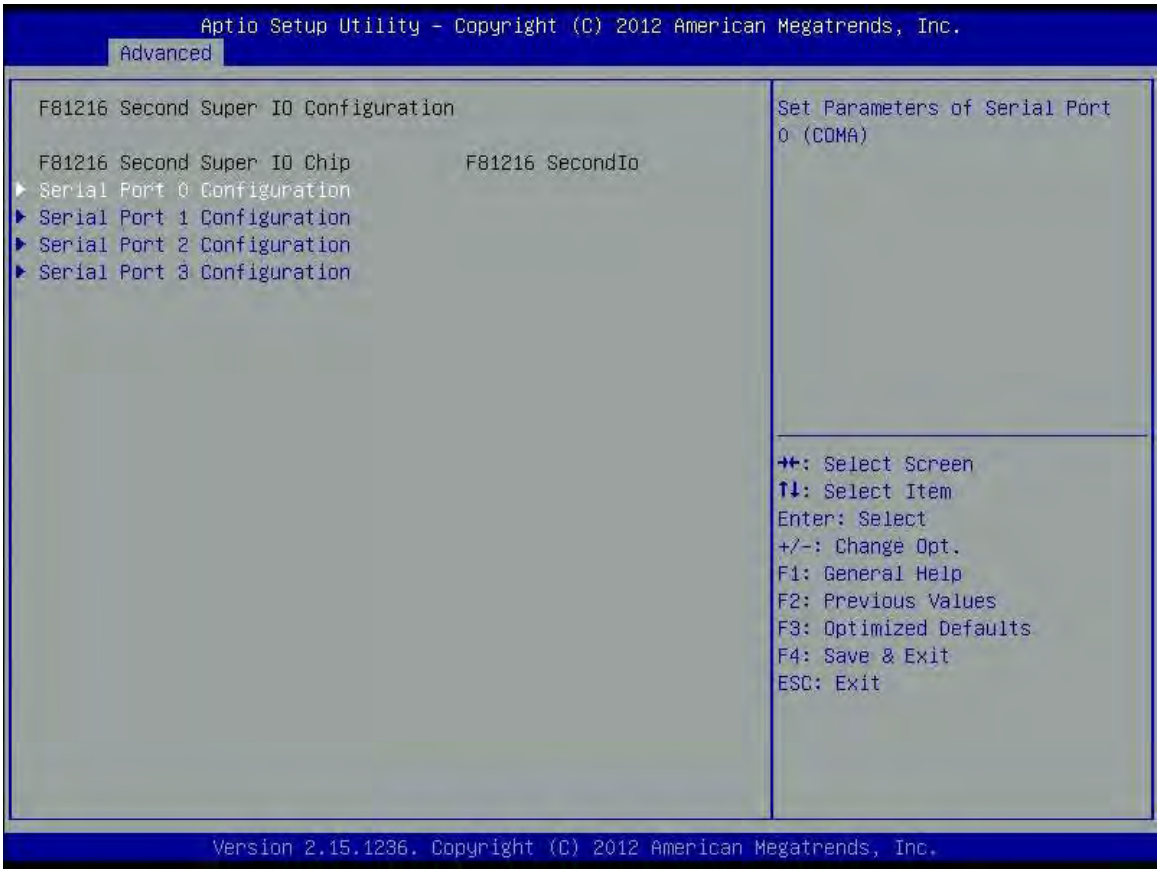
USB Transfer time-out: The time-out value for Control, Bulk, and Interrupt transfers.

Device reset time-out: USB mass Storage device start Unit command time-out.

Device power-up delay: Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

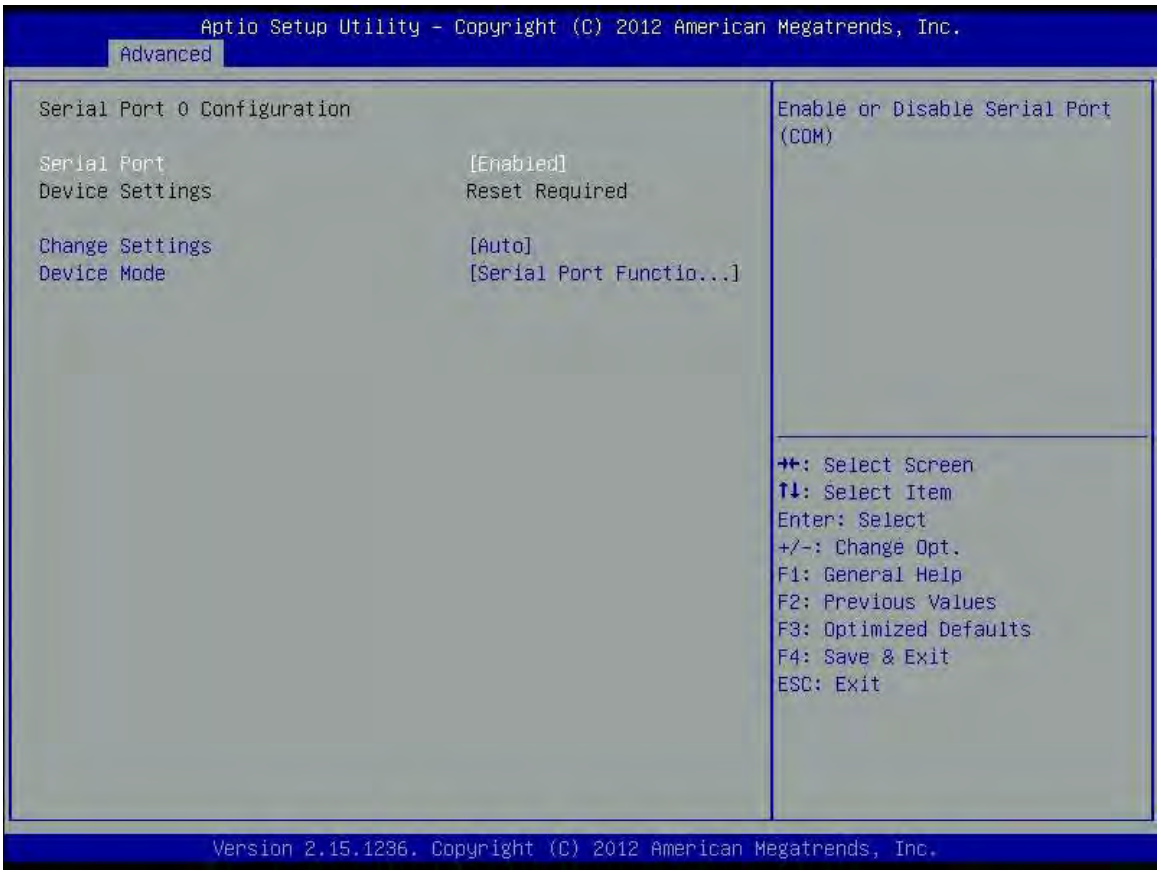
4.4.11 F81216 Second Super IO Configuration

System second super IO chip parameters



Serial Port 0~3 Configuration: Set Parameters of Serial Port 0~3 (COMA~D).

4.4.11.1 Serial Port 0~3 Configuration



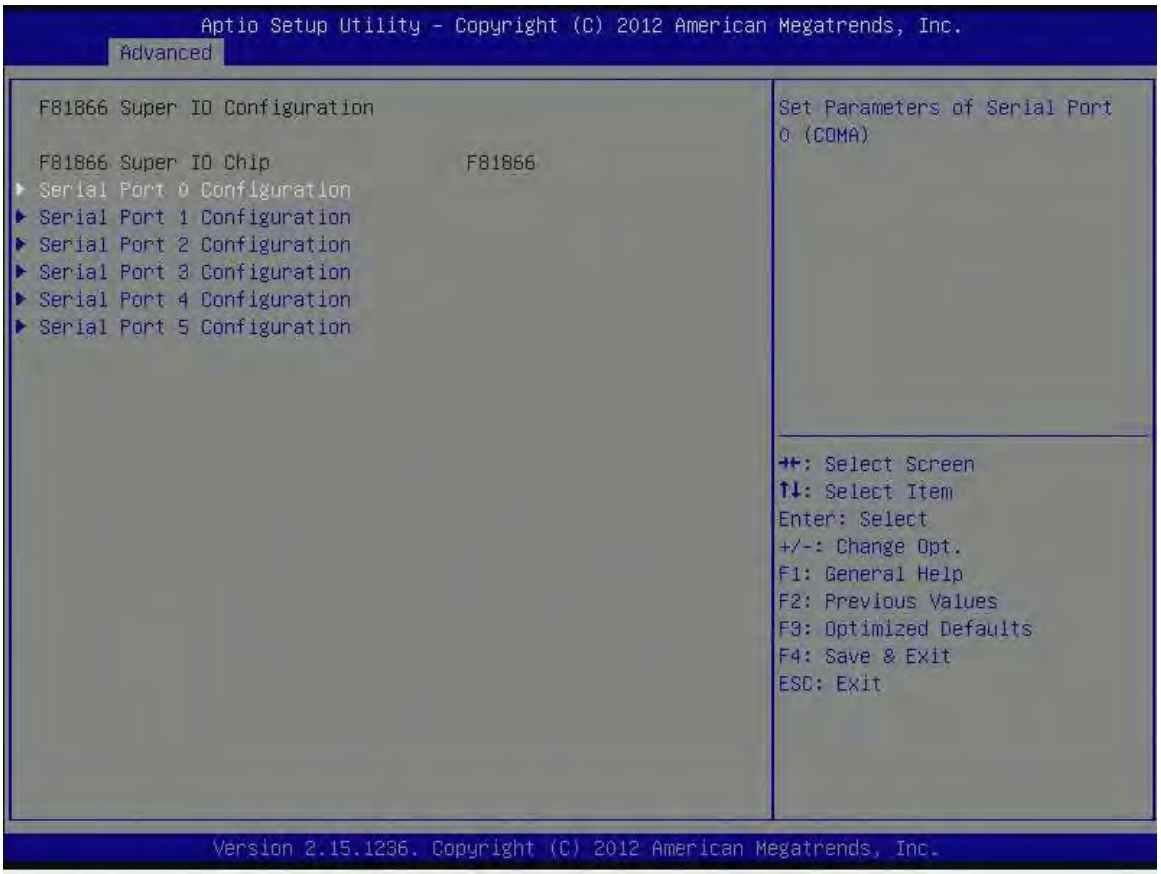
Serial Port: Enable or Disable Serial Port (COM).

Device Settings: Enable or Disable Serial Port (COM).

Change Settings: Select an optimal setting for Super IO device.

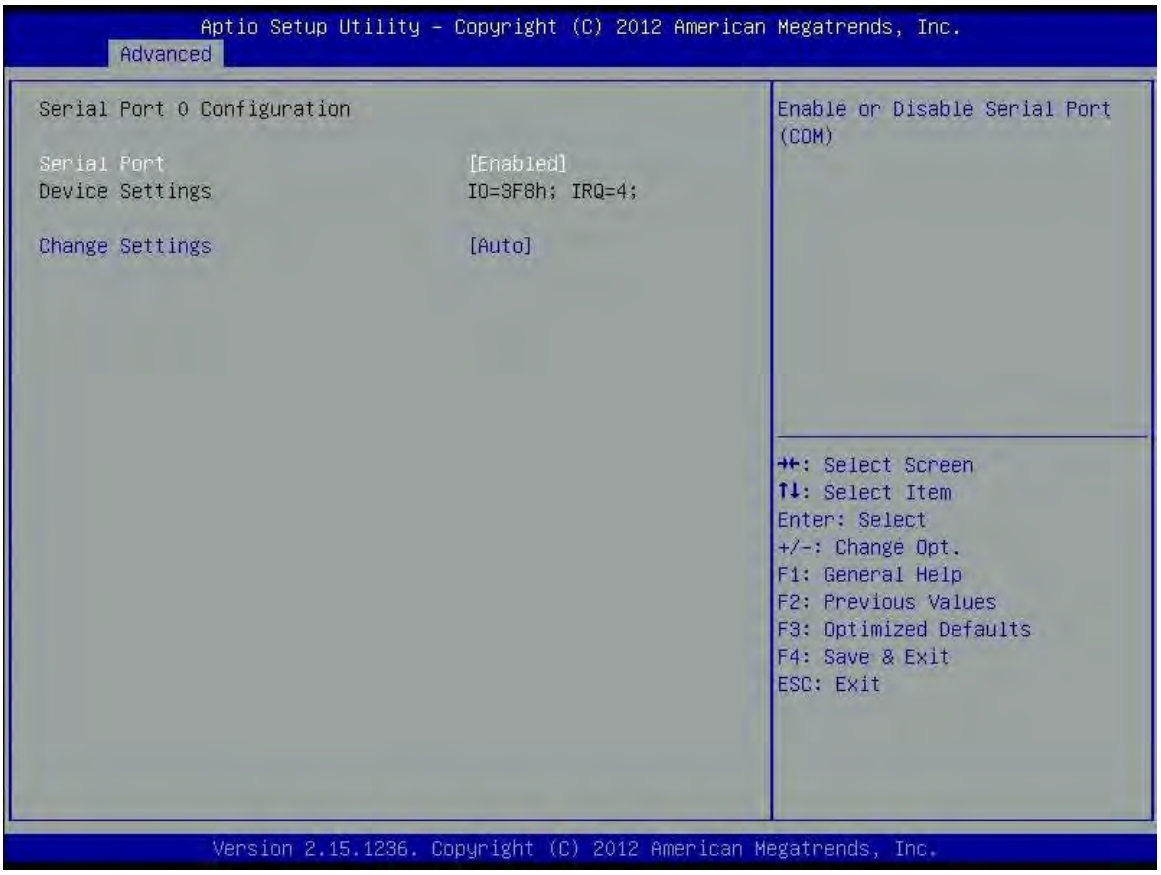
4.4.12 F81866 Super IO Configuration

System super IO chip parameters



Serial Port 0~5 Configuration: Set Parameters of Serial Port 0 (COMA~F).

Serial Port 0~5 Configuration



Serial Port 0 Configuration: Set Parameters of Serial Port 0 (COM).

Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=3F8h, IRQ=4

Change Settings: Select an optimal setting for Super IO device.

Serial Port 1 Configuration: Set Parameters of Serial Port 1 (COM).

Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=2F8h, IRQ=3

Change Settings: Select an optimal setting for Super IO device.

Serial Port 1 Mode: RS422 or RS482 serial port 1.

Serial Port 2 Configuration: Set Parameters of Serial Port 2 (COM).

Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=3E8h, IRQ=7

Change Settings: Select an optimal setting for Super IO device.

Serial Port 3 Configuration: Set Parameters of Serial Port 3 (COM).

Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=2E8h, IRQ=7

Change Settings: Select an optimal setting for Super IO device.

Serial Port 3 Mode: RS422 or RS482 serial port 3.

Serial Port 4 Configuration: Set Parameters of Serial Port 4 (COM).

Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=2F0h, IRQ=10

Change Settings: Select an optimal setting for Super IO device.

Serial Port 5 Configuration: Set Parameters of Serial Port 5 (COM).

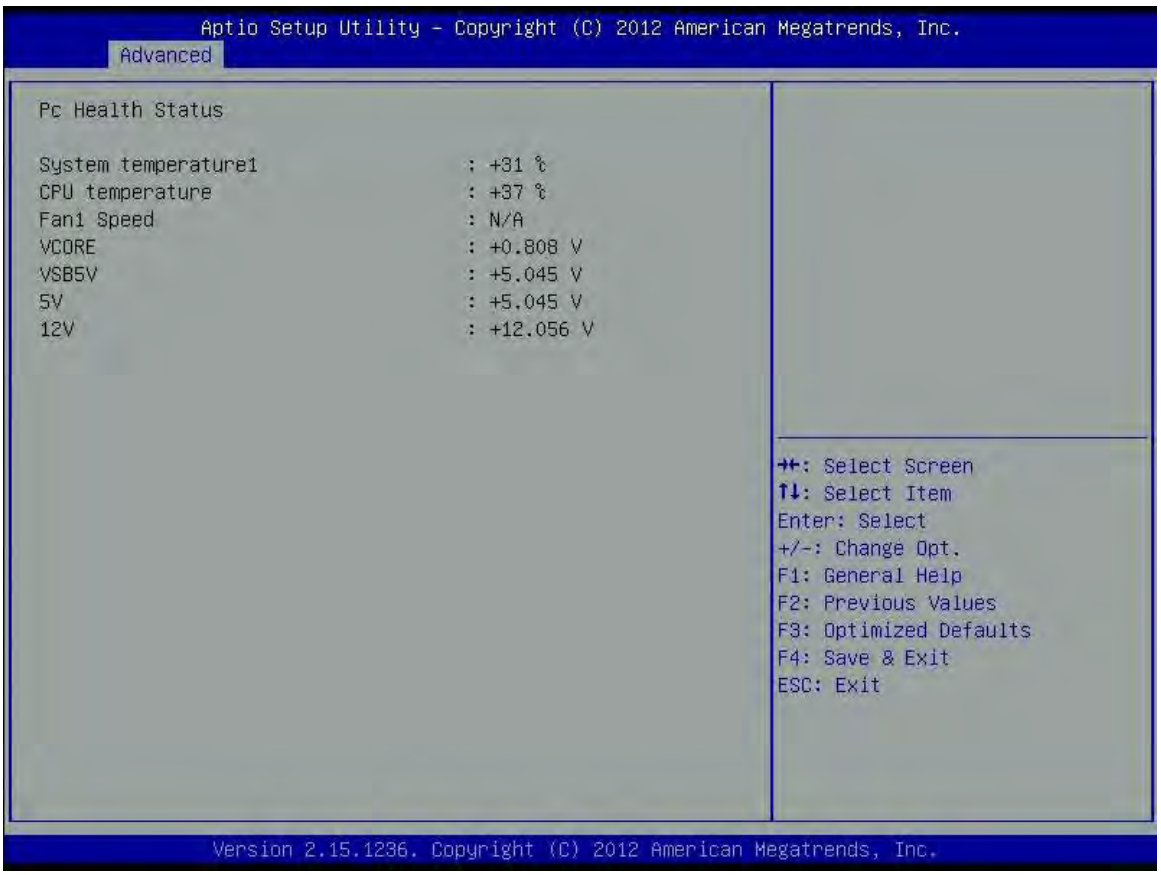
Serial Port: Enable or Disable Serial Port (COM).

Device Settings: IO=2E0h, IRQ=10

Change Settings: Select an optimal setting for Super IO device.

4.4.13 F81866 H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.

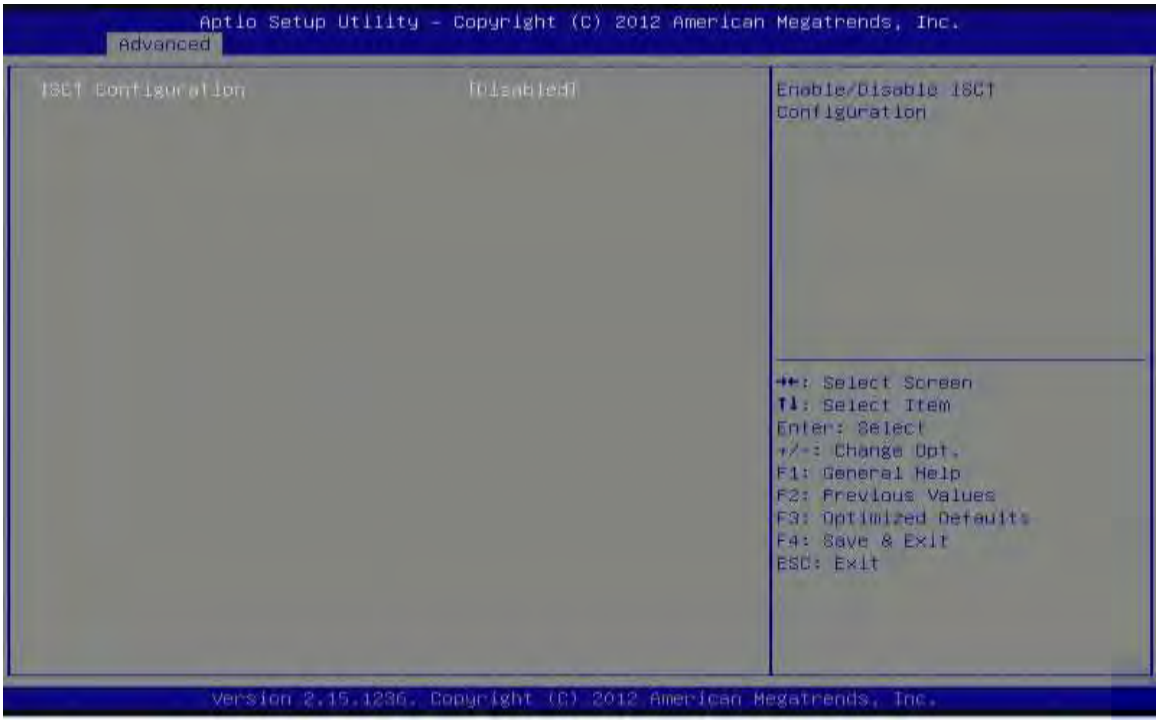


System Temperature: Detects and displays the current system temperature.

CPU Temperature: Detects and displays the current CPU temperature.

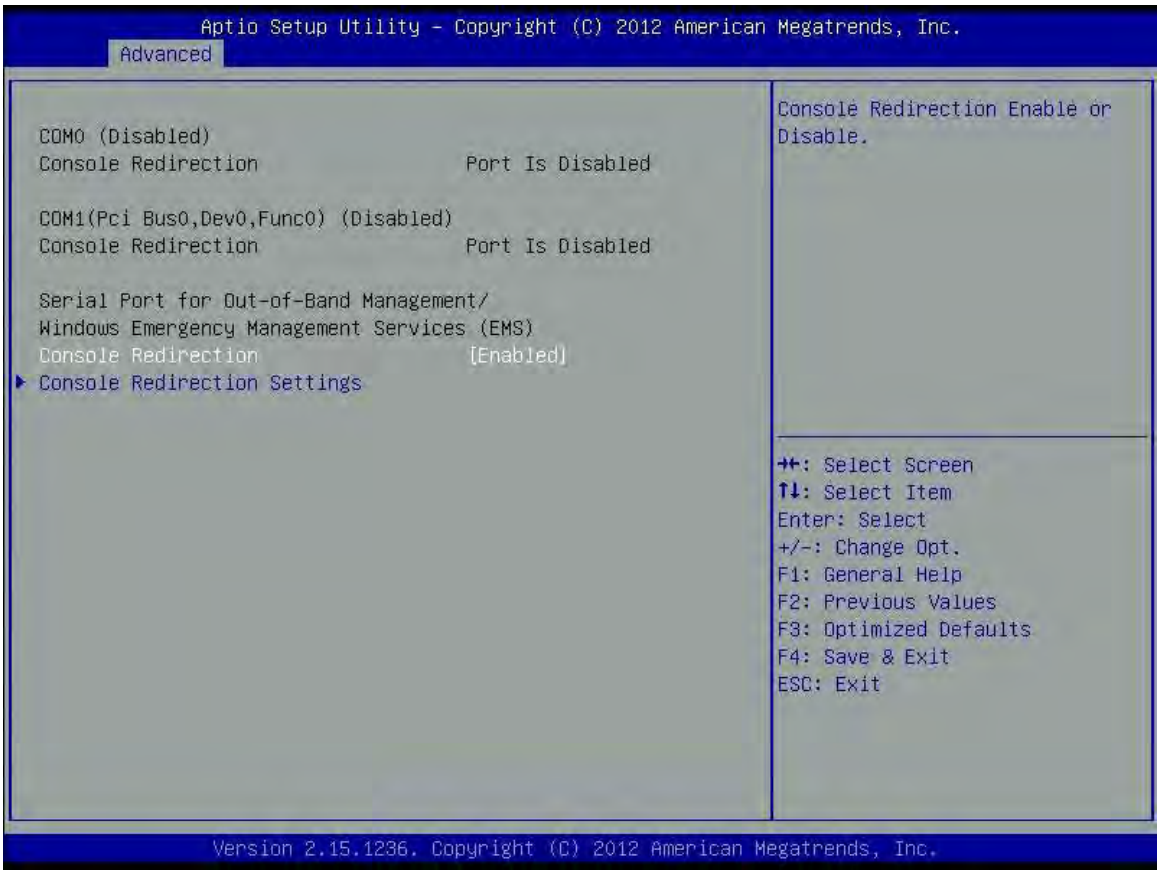
Fan1 Speed: Detects and displays the current CPU fan speed.

4.4.14 Intel® Smart Connect Technology



ISCT: Enable/Disable ISCT Configuration

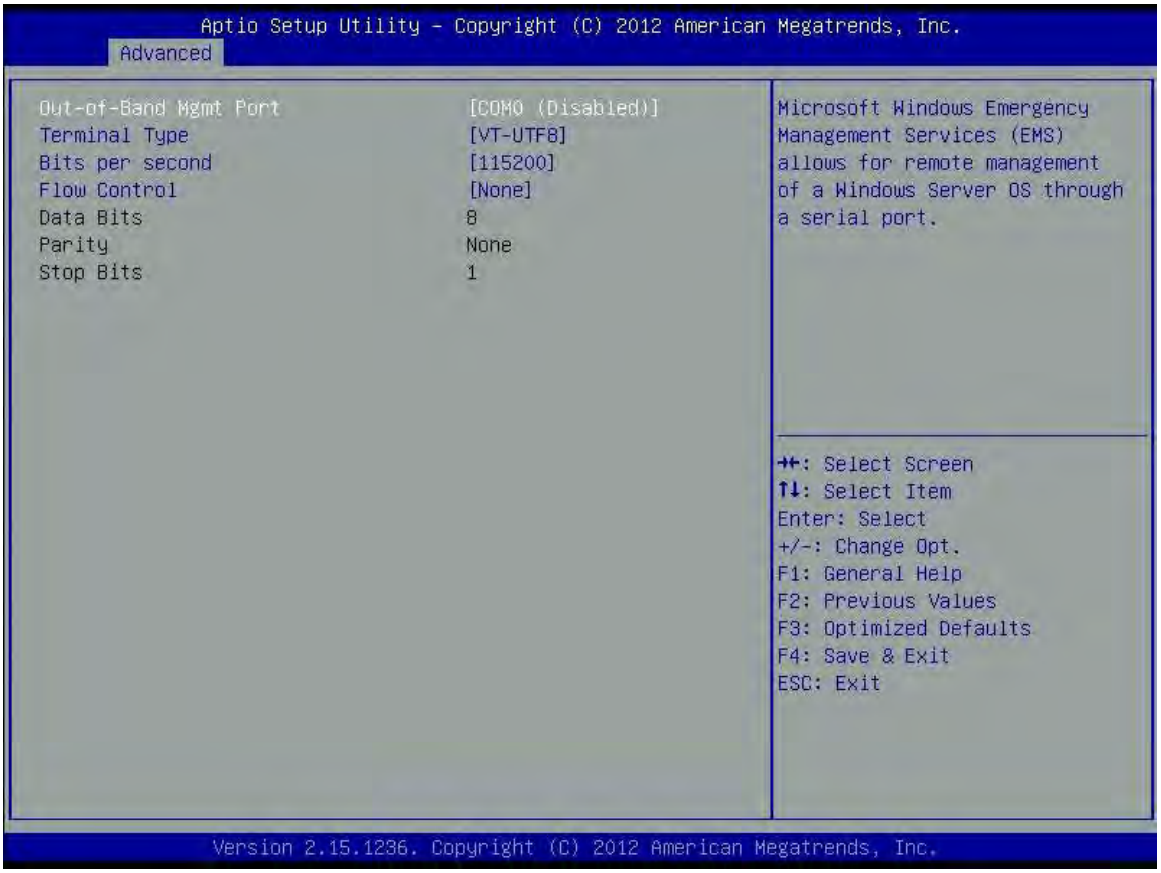
4.4.15 Serial Port Console Redirection



Console Redirection: Console Redirection Enable or Disable

Console Redirection setting: The setting specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

4.4.15.1 Console Redirection setting:



Out-of-Band Mgmt Port: Microsoft Windows Emergency Management Service (EMS) allows for remote management of a Windows Server OS through a serial port.

Terminal Type: VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.

Bits per second: selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

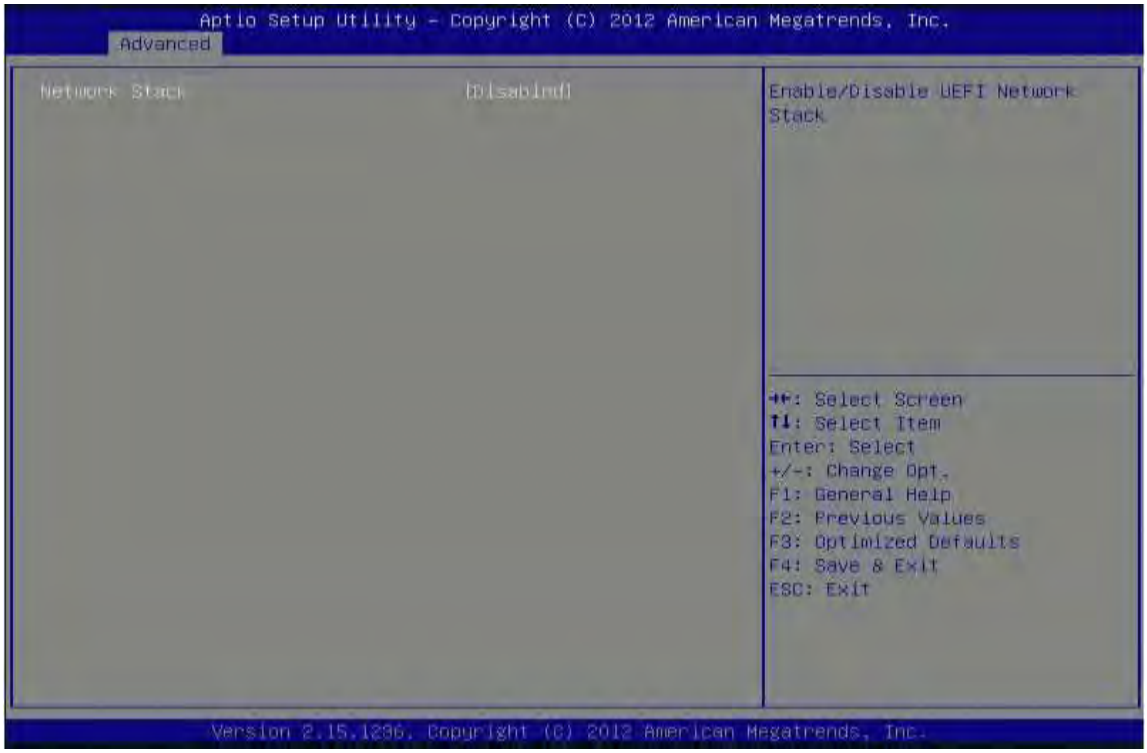
Flow Control: Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

Data bits: 8

Parity: None

Stop bits: 1

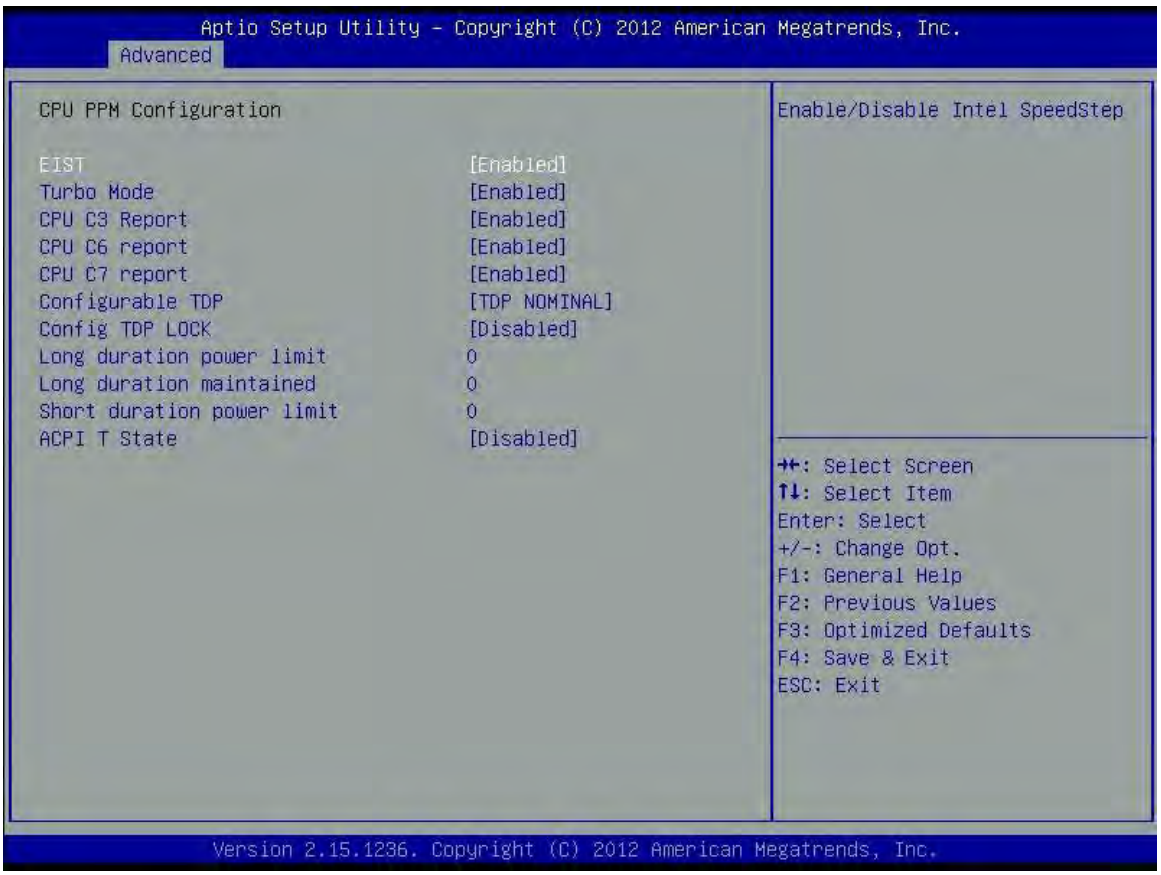
4.4.16 Network stack Configuration



Network Stack: Enable/Disable UEFI Network Stack

4.4.17 CPU PPM Configuration

CPU PPM configuration parameters



EIST: Enables or disables Intel SpeedStep.

Turbo Mode: turbo mode

CPU C3 Report: Enable or disable CPU C3 (ACPI C2) report to OS.

CPU C6 Report: Enable or disable CPU C6 (ACPI C3) report to OS.

CPU C7 Report: Enable or disable CPU C7 (ACPI C3) report to OS.

Configurable TDP: Allow reconfiguration of TDP levels based on current power and thermal delivery capabilities of the system.

Config TDP LOCK: Lock the Config TDP control register

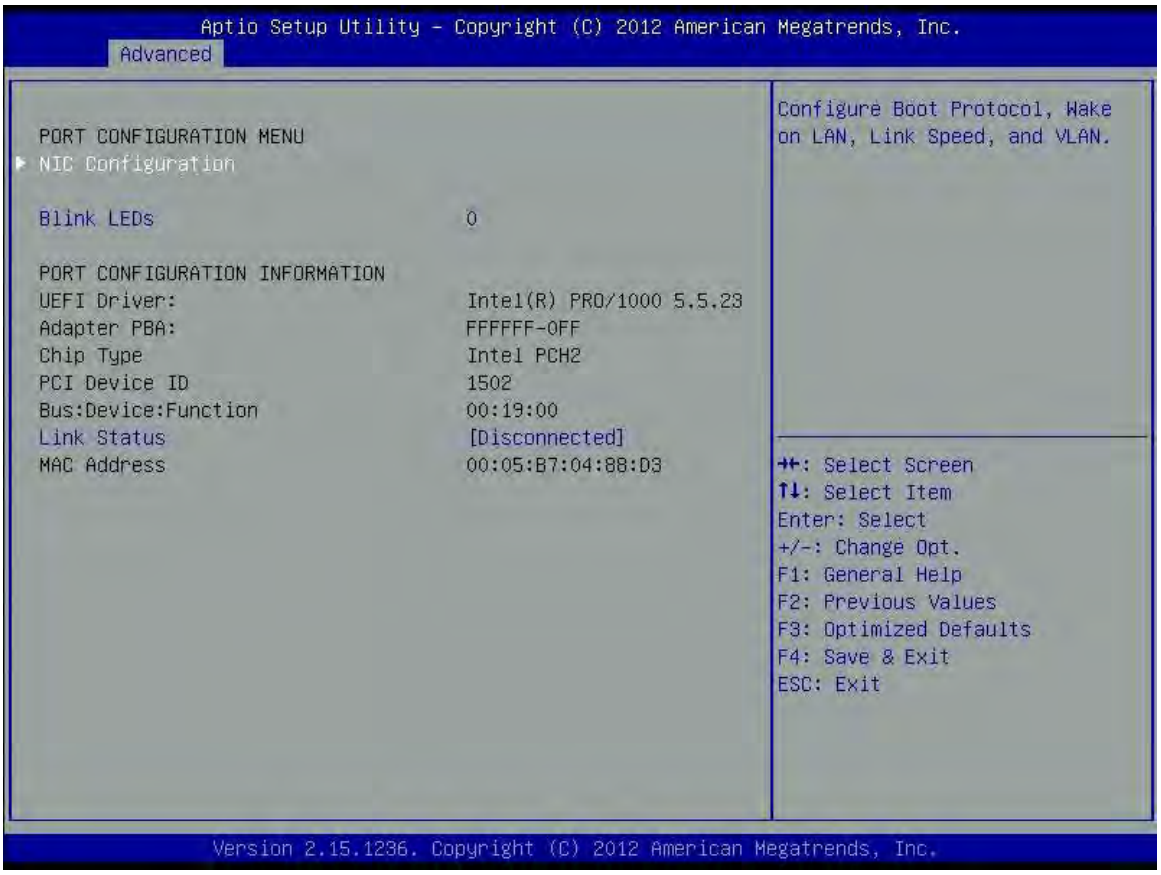
Long duration power limit: Long duration power limit in Watts, 0 means use factory default.

Long duration maintained: Time window which the long duration power is maintained.

Short duration power limit: Short duration power limit in Watts, 0 means use factory default.

ACPI T State: Enable or disable ACPI T state support.

4.4.18 Intel ® 82579LM Gigabit Network Connection



PORT CONFIGURATION MENU

NIC Configuration: Configure Boot Protocol, Wake on LAN, Link Speed and VLAN.

Blink LEDs: Identify the physical network port by blinking the associated LED.

PORT CONFIGURATION INFORMATION

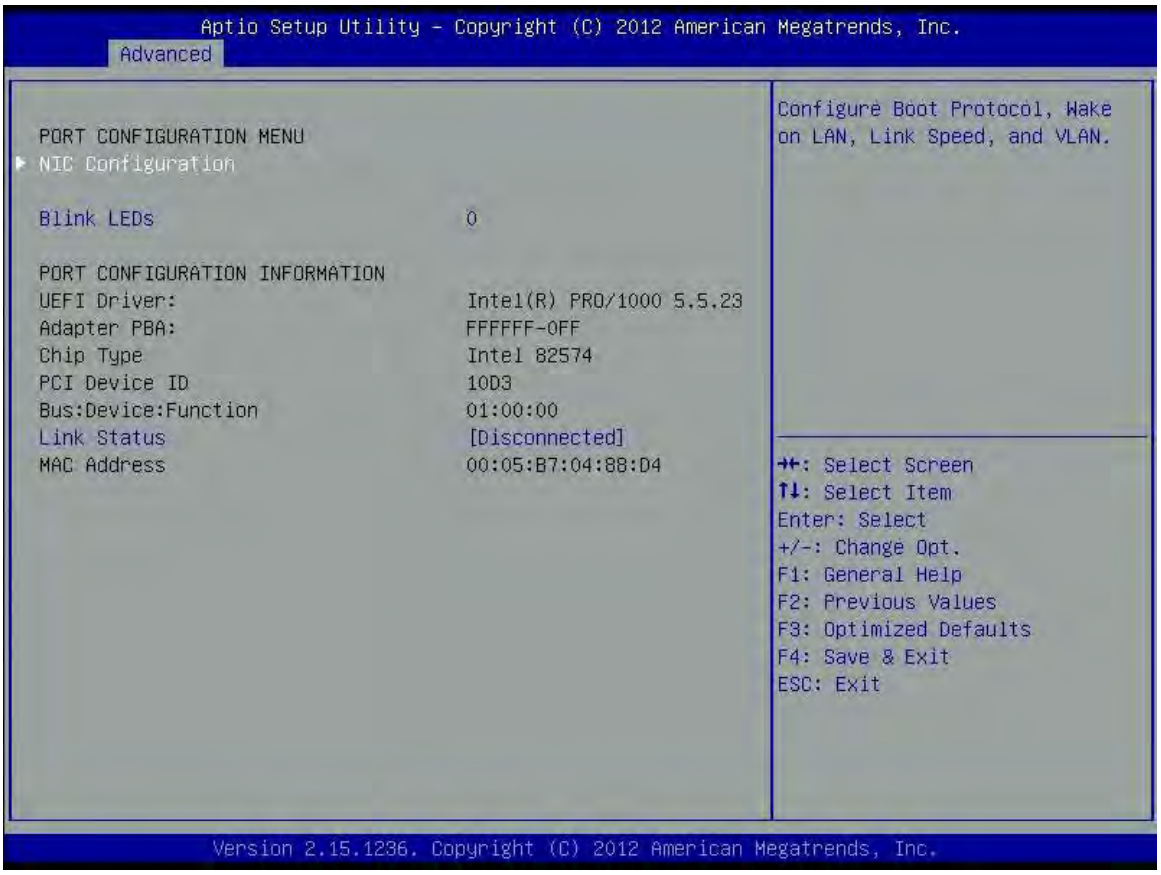
Link Status: Link Status.

4.4.18.1 NIC Configuration

Link Speed: Specifies the port speed used for the selected boot protocol.

Wake On LAN: Enables the server to be powered on using an in-band magic packet.

4.4.19 Intel ® 82574L Gigabit Network Connection



PORT CONFIGURATION MENU

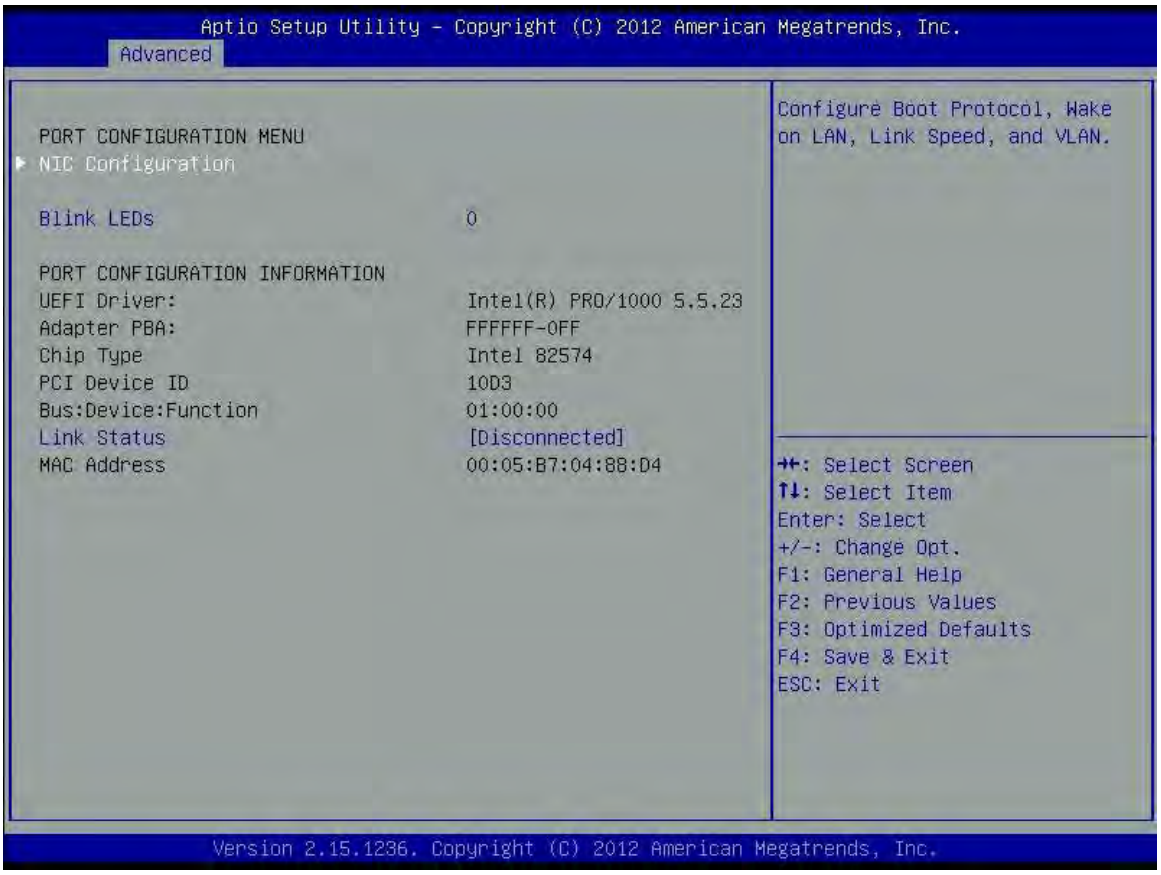
NIC Configuration: Configure Boot Protocol, Wake on LAN, Link Speed and VLAN.

Blink LEDs: Identify the physical network port by blinking the associated LED.

PORT CONFIGURATION INFORMATION

Link Status: Link Status.

4.4.19.1 NIC Configuration

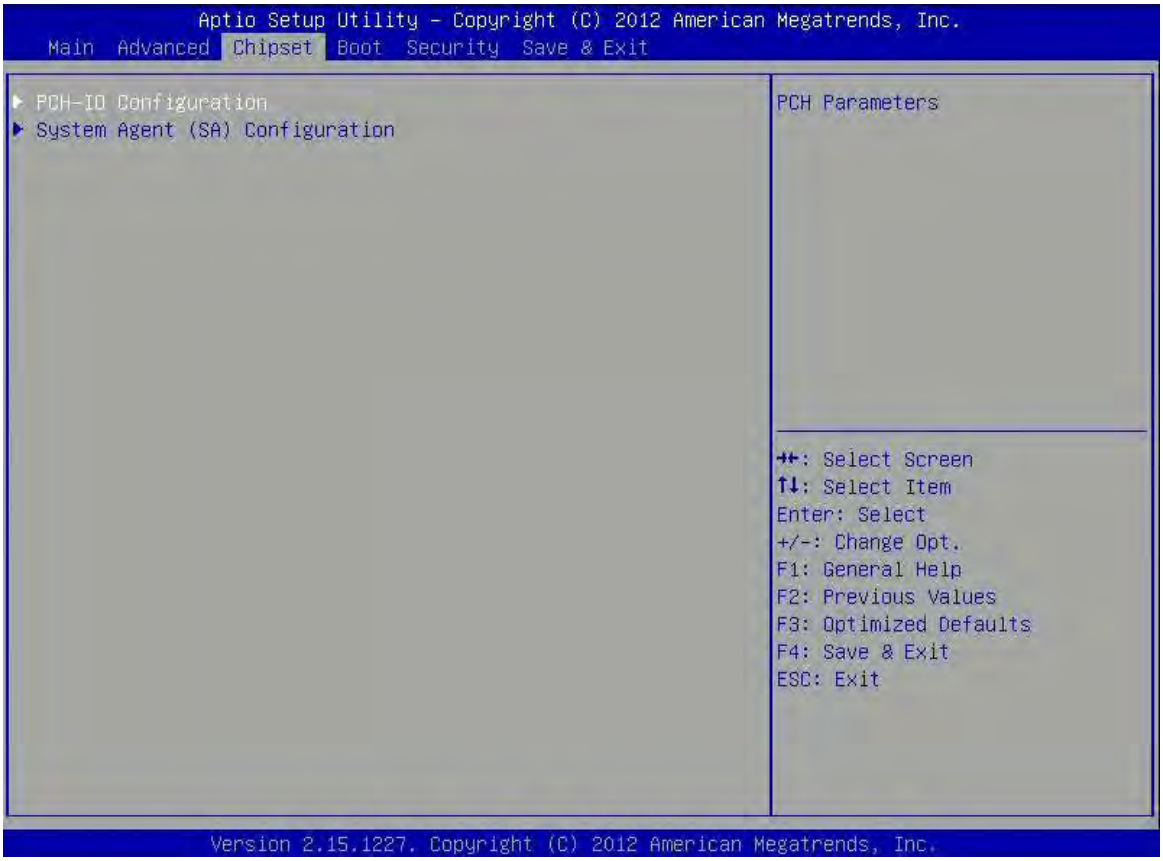


Link Speed: Specifies the port speed used for the selected boot protocol.

Wake On LAN: Enables the server to be powered on using an in-band magic packet.

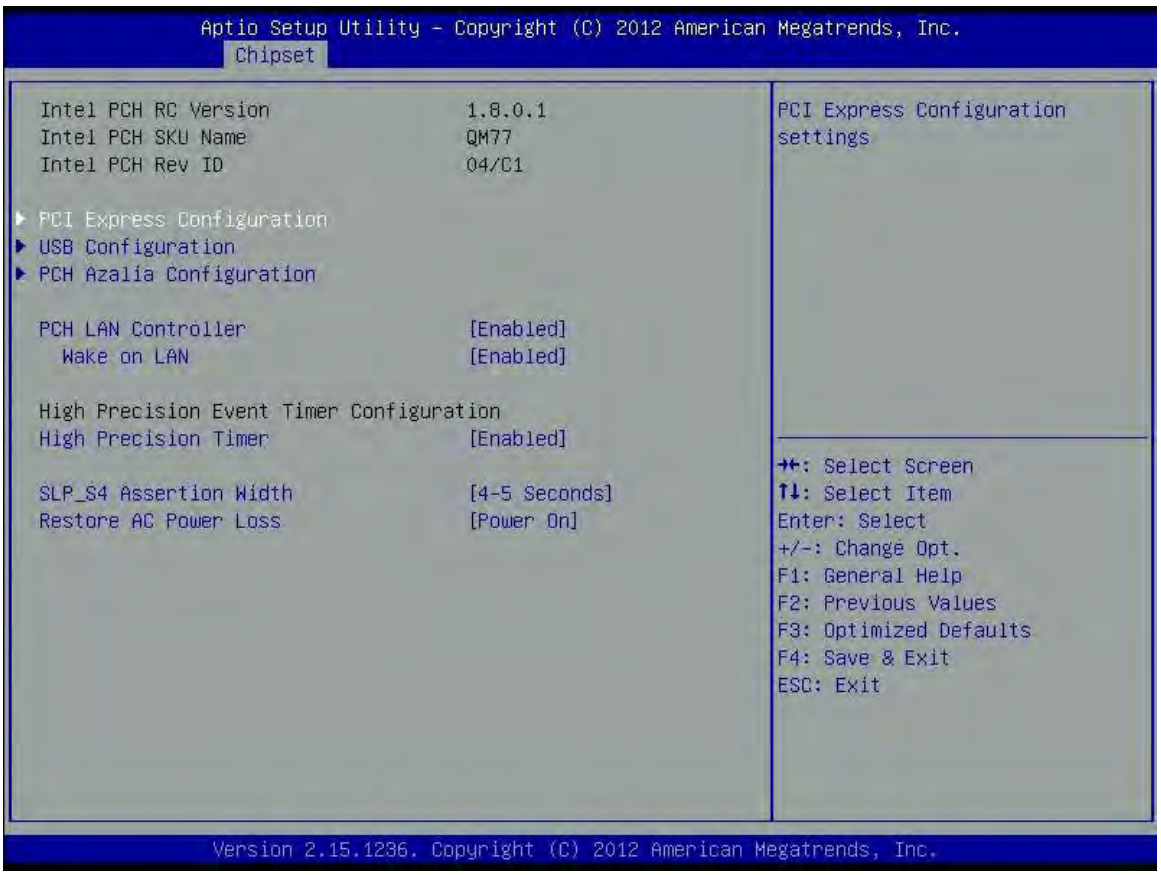
4.5 Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



4.5.1 PCH-IO Configuration

This section allows you to configure the North Bridge Chipset.



PCI Express Configuration: PCI Express configuration settings

USB Configuration: USB configuration settings

PCH Azalia Configuration: PCH Azalia configuration settings

PCH LAN Controller: Enable or disable onboard NIC.

Wake on LAN: Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state.)

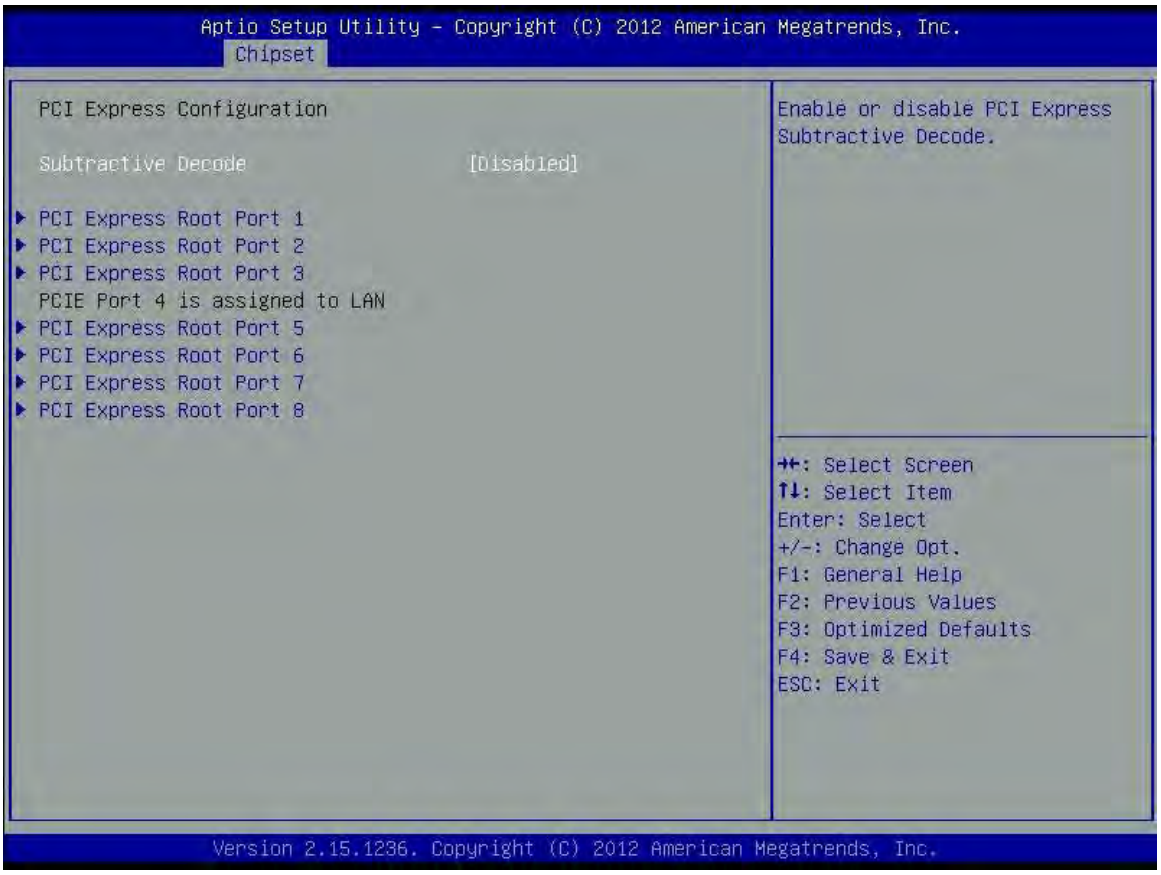
High Precision Event Timer Configuration

High Precision timer: enable/disable the high precision event timer.

SLP_S4 Assertion Width: Select a minimum assertion width of the SLP_S4# signal.

Restore AC Power Loss: Select AC power state when power is re-applied after a power failure.

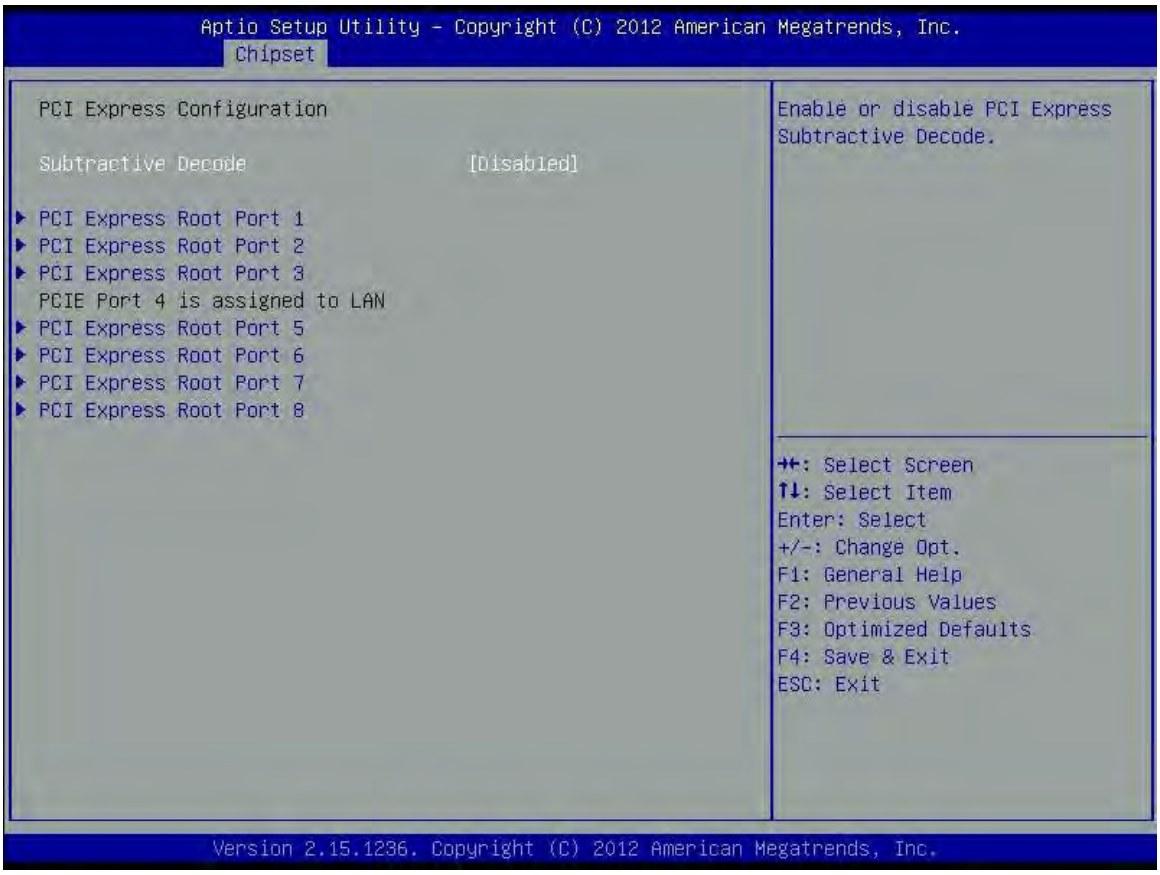
4.5.1.1 PCI Express Configuration



Subtractive Decode: Enable or disable PCI Express Subtractive Decode.

PCI Express Root Port: PCI Express Root Port Setting.

4.5.1.1.1 PCI Express Root Port 1~8



PCI Express Root Port1~3, 5~8: Control the PCI Express Root Port.

ASPM Support: Set the ASPM Level: Force L0s – Force all links to L0s State: AUTO – BIOS auto configure : DISABLE – Disables ASPM. The options are Disabled, L0s, L1, L0SL1, Auto

URR: Enable or disable PCI Express Unsupported Request Reporting.

FER: Enable or disable PCI Express Device Fatal Error Reporting.

NFER: Enable or disable PCI Express Device Non-Fatal Error Reporting.

CER: Enable or disable PCI Express Device Correctable Error Reporting.

CTO: Enable or disable PCI Express Completion Timer TO.

SEFE: Enable or disable Root PCI Express System Error on Fatal Error.

SENFE: Enable or disable Root PCI Express System Error on Non-Fatal Error.

SECE: Enable or disable Root PCI Express System Error on Correctable Error.

PME SCI: Enable or disable PCI Express PME SCI.

Hot Plug: Enable or disable PCI Express Hot Plug.

PCIe Speed: Select PCI Express port speed.

Detect Non-Compliance Device: Detect Non Compliance PCI Express Device. If enable, it will take more time at POST time.

Extra Bus Reserved: Extra Bus Reserved for bridges behind this Root Bridge.

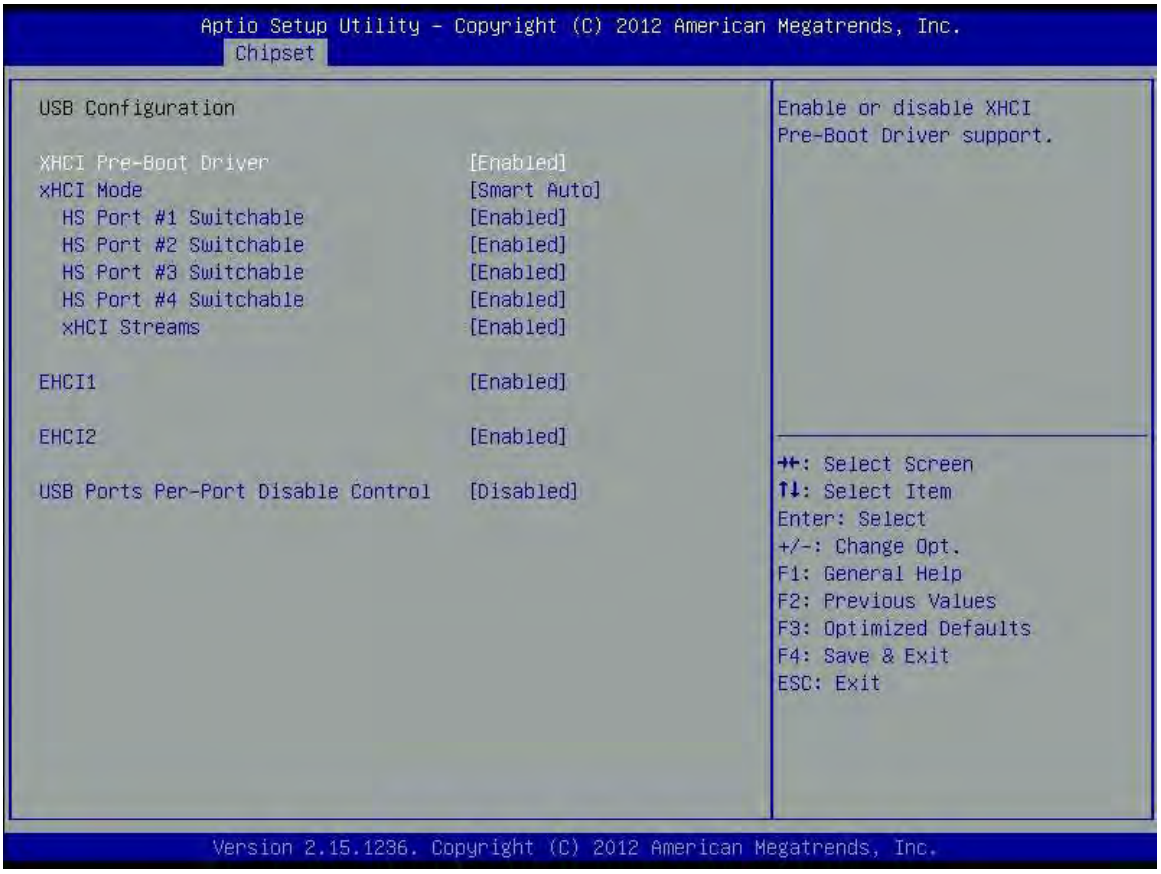
Reseved Memory: Reserved Memory Range for this Root Bridge.

Prefetchable Memory: Prefetchable Memory Range for this Root Bridge.

Reserved I/O: Reserved I/O (4K/8K/12K/16K/20K) Range for this Root Bridge.

PCI Port 4 is assigned to LAN

4.5.1.2 USB Configuration



XHCI Pre-Boot Driver: Enable or disable XHCI Pre-Boot Driver support.

XHCI Mode: Mode of operation of XHCI controller.

HS Port #1~4 Switchable: Enable or disable XHCI pre-boot driver support.

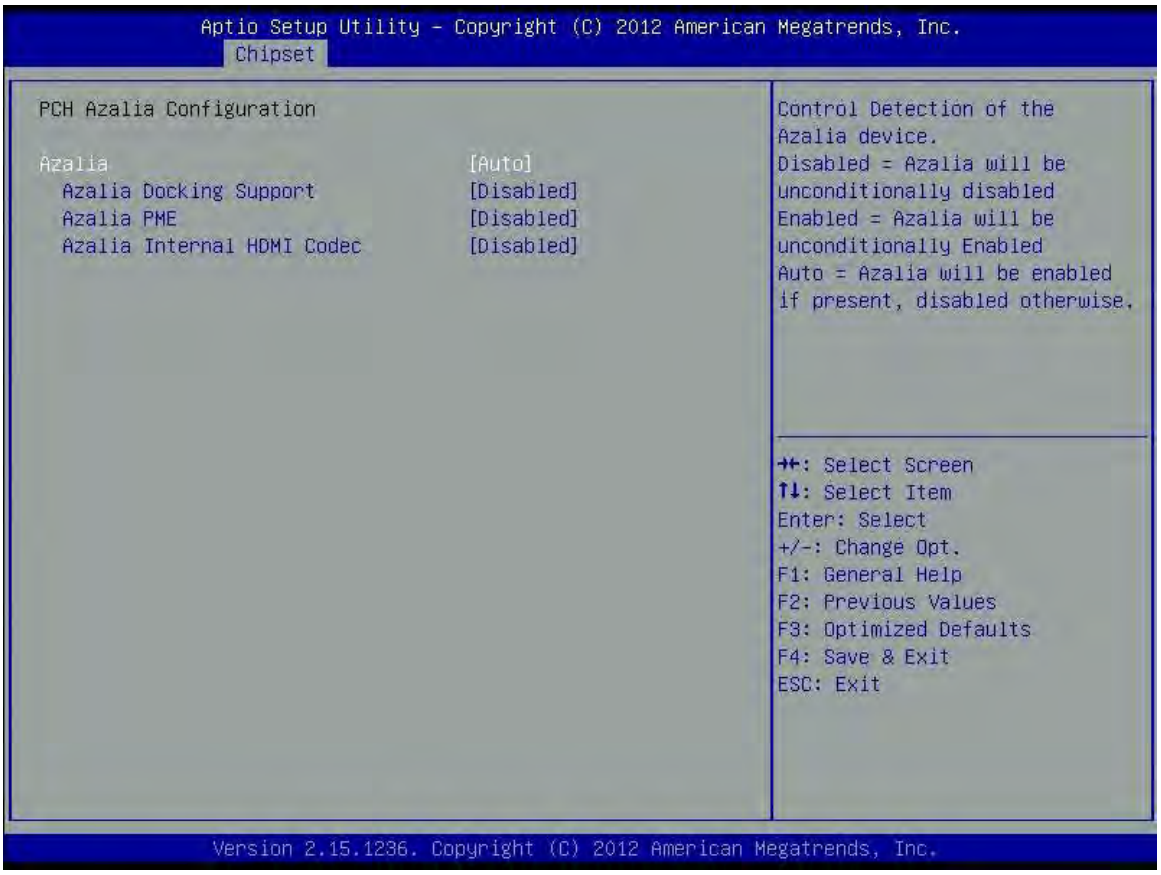
XHCI Stream: enable or disable XHCI maximum primary stream array size.

EHCI1: Control the USB EHCI (USB2.0) functions. One EHCI1 controller must always be enabled.

EHCI1 & EHCI2: Control the USB EHCI (USB2.0) functions. One EHCI1 controller must always be enabled.

USB Ports Per-Port Disable Control: Control each of the USB ports (0~13) disabling.

4.5.1.3 PCH Azalia Configuration



Azalia: Control Detection of the Azalia device.

Disabled=Azalia will unconditionally disabled.

Enabled=Azalia will be unconditionally enabled.

Auto=Azalia will enabled if present, disabled otherwise.

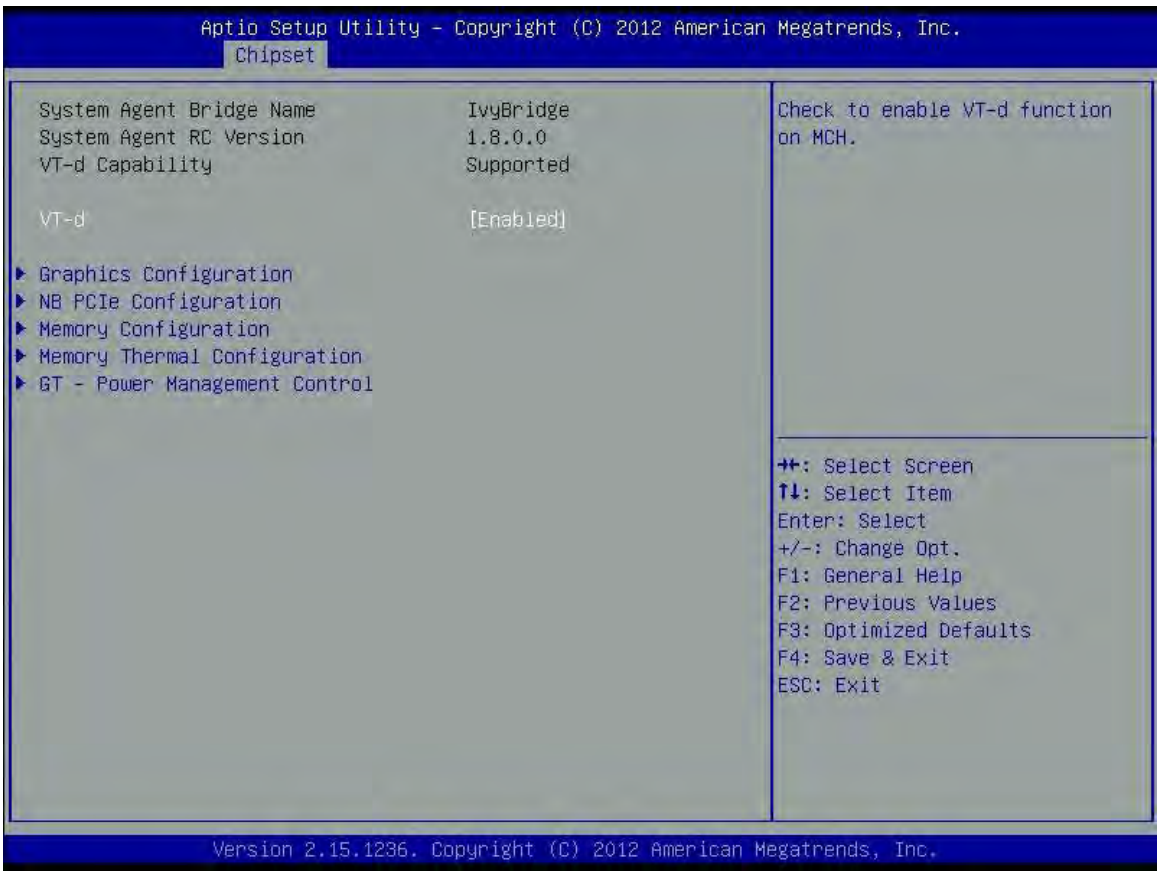
Azalia Docking Support: enable or disable Azalia docking support of audio controller

Azalia PME: Enable or disable Power Management capability of audio controller.

Azalia Internal HDMI codec: Enable or disable internal HDMI codec for Azalia.

4.5.2 System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.



VT-d: Check to enable VT-d function on MCH.

Graphics Configuration: Configure graphics settings

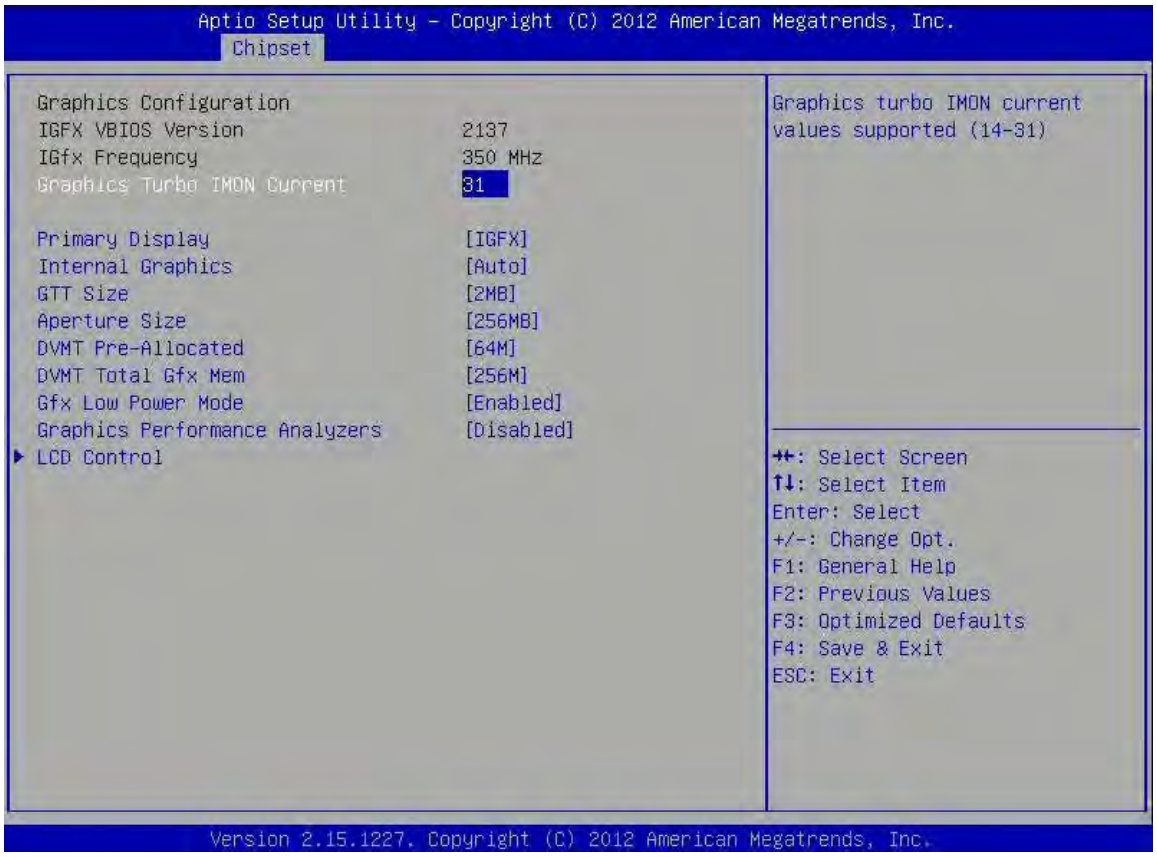
NB PCIe Configuration: Configure PCI Express settings

Memory Configuration: Memory configuration parameters

Memory Thermal Configuration: Memory thermal settings

GT-Power Management Control: Configure Power Management settings

4.5.2.1 Graphics Configuration



Graphics Turbo IMON Current: Graphics turbo IMON current values supported (14-31).

Primary Display: select which of AUTO/IGFX/PEG/SG graphics device should be primary display or select SG for switchable GFX

Internal Graphics: Keep IGD enabled based on the setup options

GTT Size: select GTT size.

Aperture Size: Select the Aperture Size.

DVMT Pre-Allocated: Select DVMT 5.0 Pre-Allocated (fixed) Graphics memory size used by the internal graphics device.

DVMT Total Gfx Mem: Select DVMT5.0 total graphic memory size used by the internal graphics device.

Gfx Low Power Enable: this option is applicable for SFF only.

Panel Power Enable: Enable/Disable forcing of Panel Power in the BIOS.

LCD Control: LCD Control

4.5.2.1.1 LCD Control

Primary IGFX Boot Display: Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

Seconday IGFX Boot Display: Select secondary display device.

LCD Panel Type: Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

SDVO-LFP Panel Type: Select SDVO panel used by Internal Graphics Device by selecting the appropriate setup item.

Panel Scaling: Select the LCD panel scaling option used by the Internal Graphics Device.

Backlight control: backlight control setting

Active LFP: select the active LFP configuration.

No LVDS: VBIOS does not enable LVDS

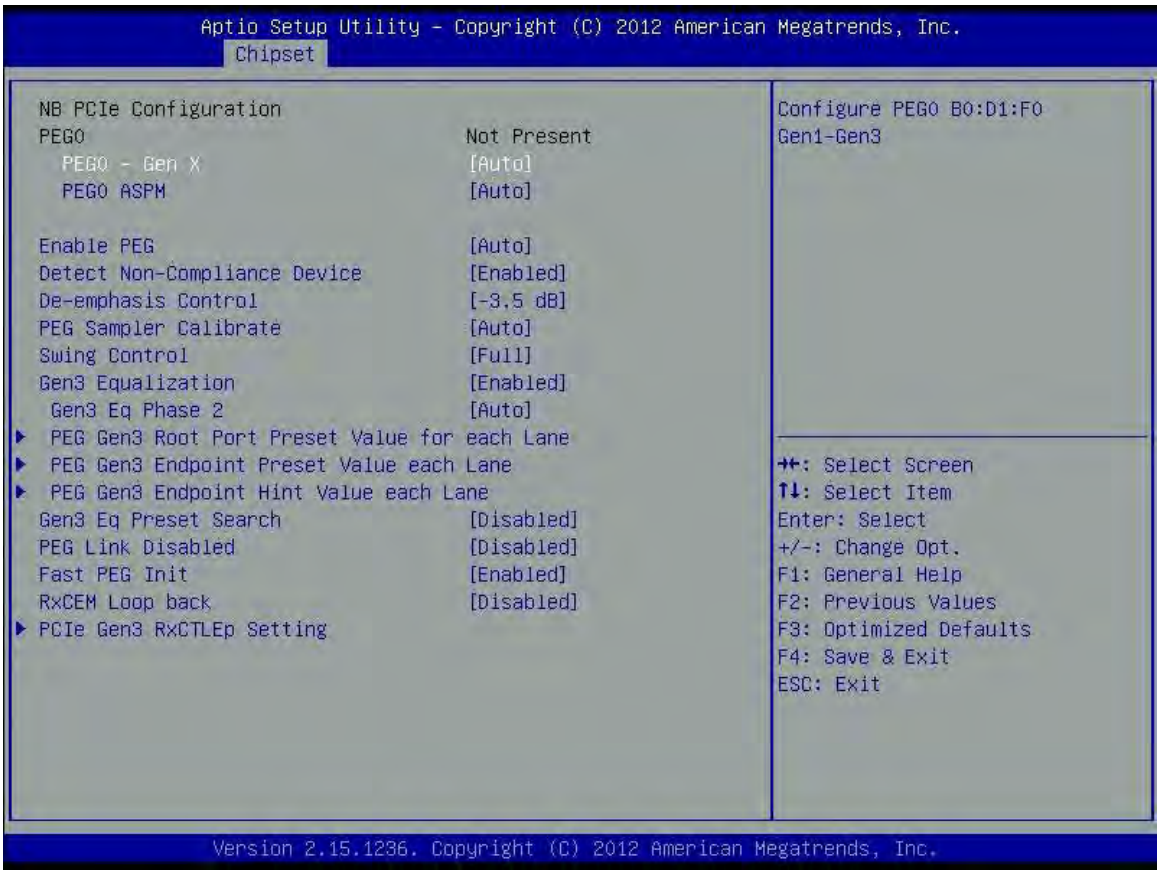
Int-LVDS: VBIOS enables LVDS driver by Integrated encoder.

SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder.

eDP port-A: LFP driven by Int-DisplayPort encoder from Port-A

Panel Color Depth: select the LFP panel color depth.

4.5.2.2 NB PCIE Configuration



PEG0 – Gen X: Configure PEG0 B0:01:F0 Gen1-Gen3

PEG0 ASPM: Control ASPM support for the PEG: device 1 function 0. This has no effect PEG is not currently active device.

Enable PEG: to enable or disable the PEG.

Detect Non-Compliance Device: Detect Non-Compliance PCI Express device in PEG.

De-emphasis Control: configure the De-emphasis control o PEG

PEG Sampler calibrate: enable or disable PEG sampler calibrate. Auto means disabled for SNB/MB/DT. Enabled for IVB A0 B0.

Swing control: Perform PEG swing control, on IVB C0 and later.

Gen3 Equalization: Perform PEG Gen3 equalization steps.

Gen3 Eq Phase 2: perform PEG Gen3 equalization phase 2.

PEG Gen3 Root Port Preset Value of each Lane: Root port preset value per lane (0~15) for Gen3 equalization.

PEG Gen3 Endpoint Preset Value each Lane: endpoint preset value per lane (0~15) for Gen3 equalization.

PEG Gen3 Endpoint Hint Value each Lane: endpoint hint value per lane (0~15) for Gen3 equalization.

Gen3 Eq Preset search: perform PEG Gen3 preset search algorithm, on IVB C0 and later.

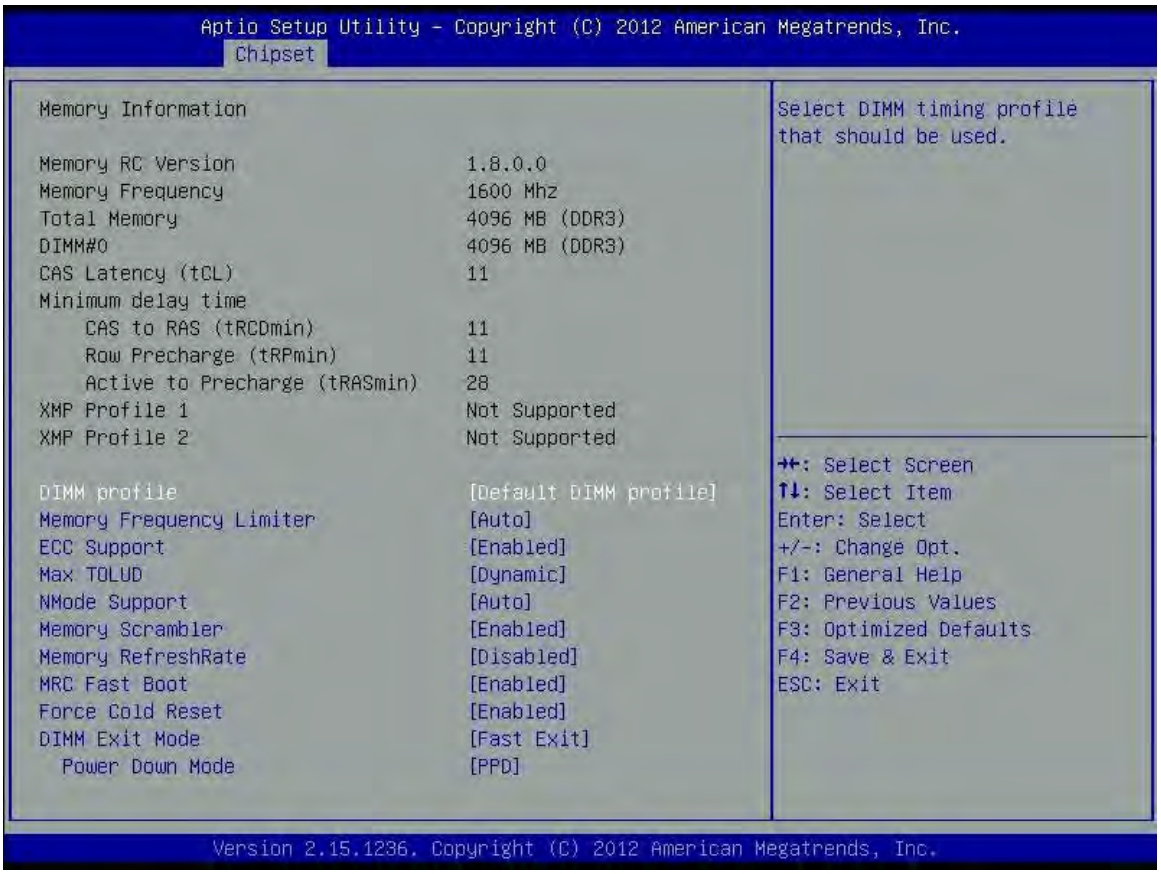
PEG Link Disabled: Enable or disable PCIe link disable mechanism for additional power saving.

Fast PEG Init: Enable or disable fast PEG Init, some optimization of no PEG devices present in cold boot.

RxCEM Loop Back: Enable or disable RxCEM Loop Back.

PCIe Gen3 RxCTLed Setting (0~7): the range of the setting for perbundle is (0~15). This setting has to be specified basing on platform design and following the guideline.

4.5.2.3 Memory Configuration



DIMM profile: Select DIMM timing profile that should be used.

Memory Frequency Limiter: maximum memory frequency selections in Mhz.

ECC Support: Enable or disable DDR Ecc support

Max TOLUD: Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.

NMode Support: NMode support option.

Memory Scramble: enable or disable memory scramble support.

Memory RefreshRate: Refines memory refresh rate (x1 or x2).

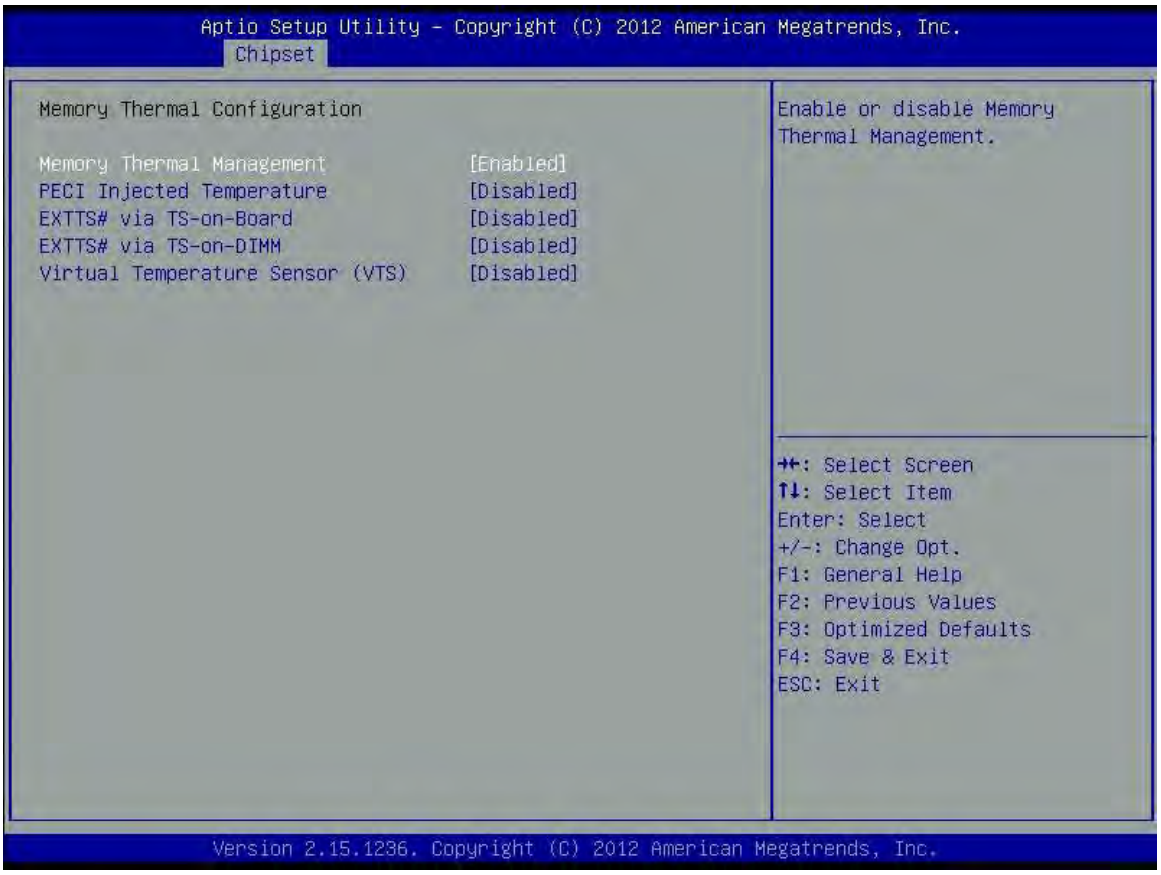
MRC Fast Boot: enable or disable MRC fast boot.

Force Cold Reset: force cold reset or choose MRC cold reset mode, when cold boot is required during MRC execution. Note: if 5.OMB is present, force cold reset is required.

DIMM Exit Mode: DIMM exit mode control.

Power Down Mode: power down mode control.

4.5.2.4 Memory Thermal Configuration



Memory Thermal Management: enable or disable memory thermal management.

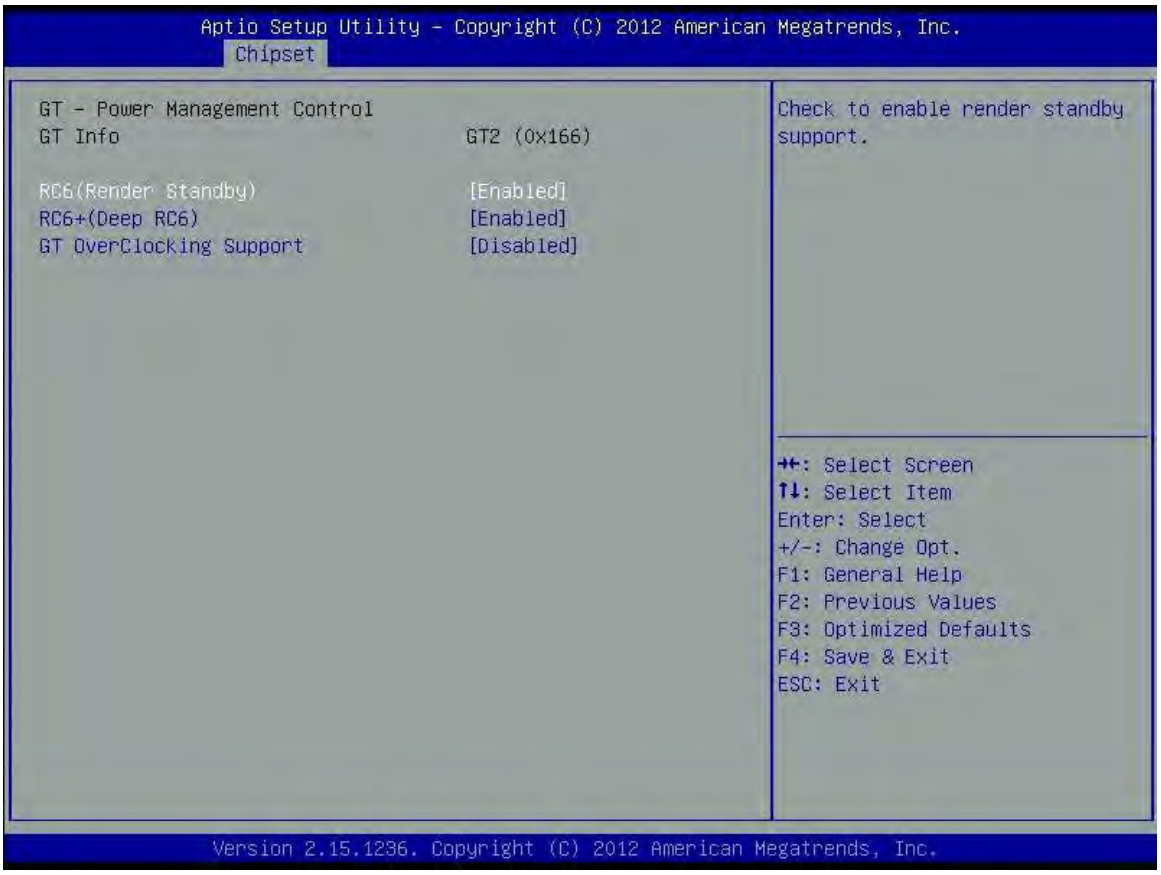
PECI Injected Temperature: enable or disable memory temperature to be injected to the processor via PECI.

EXTTS# via TS-On-Board: enable or disable routing TS-on-board ALERT# and THERM# pins on the PCH.

EXTTS# via TS-On-DIMM: enable or disable routing TS-on-DIMM ALERT# to EXTTS# pins on the PCH.

Virtual Temperature Sensor (VTS): enable or disable virtual temperature sensor (VTS).

4.5.2.5 GT- Power Management Control



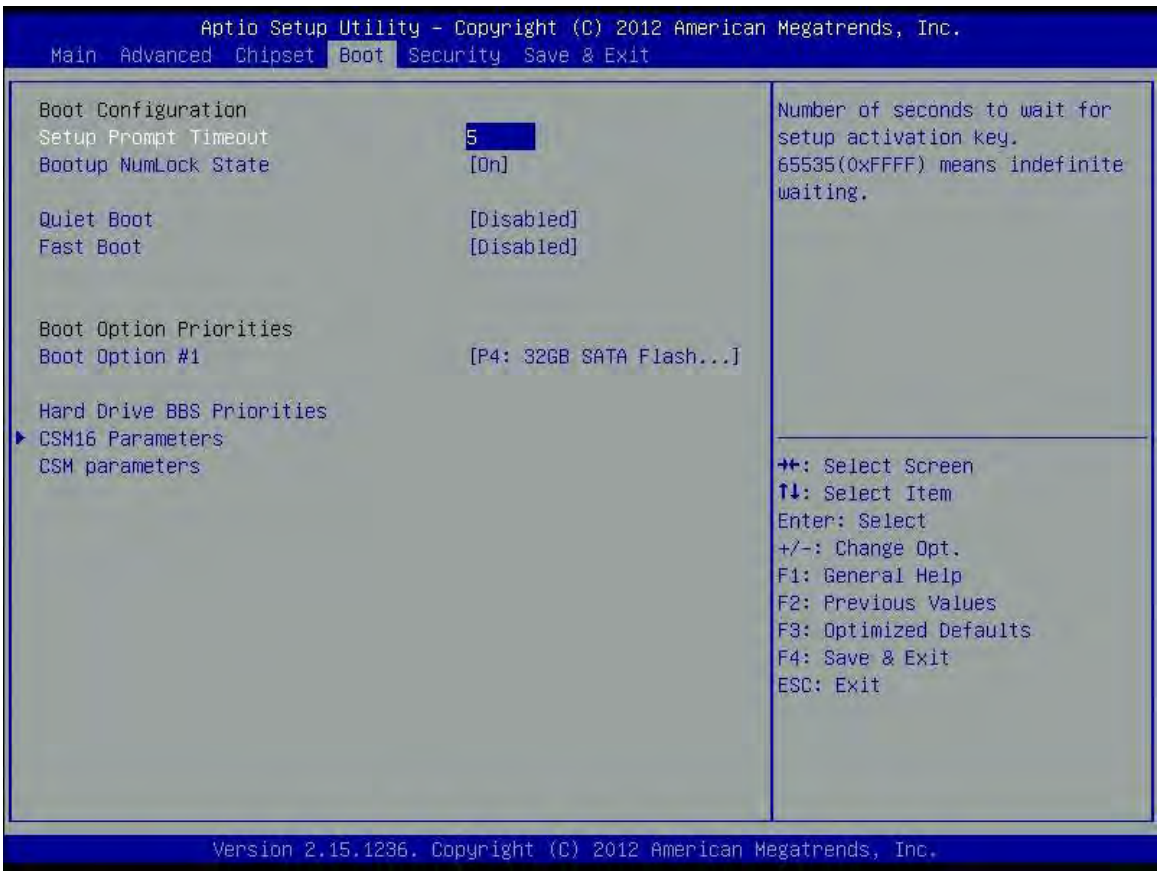
RC6 (render standby): check to enable render standby support.

RC6+ (Deep RC6): check to enable deep RC6 (RC6+) support.

GT OverClocking Support: enable or disable GT overclocking support.

4.6 Boot Setting

This section is used to configure the boot features.



Boot Configuration

Setup Prompt Timeout: Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Bootup NumLock State: Select the keyboard NumLock state.

Quiet Boot: Enables or Disables Quiet Boot option.

Fast Boot: Enables or Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Boot Option Priorities

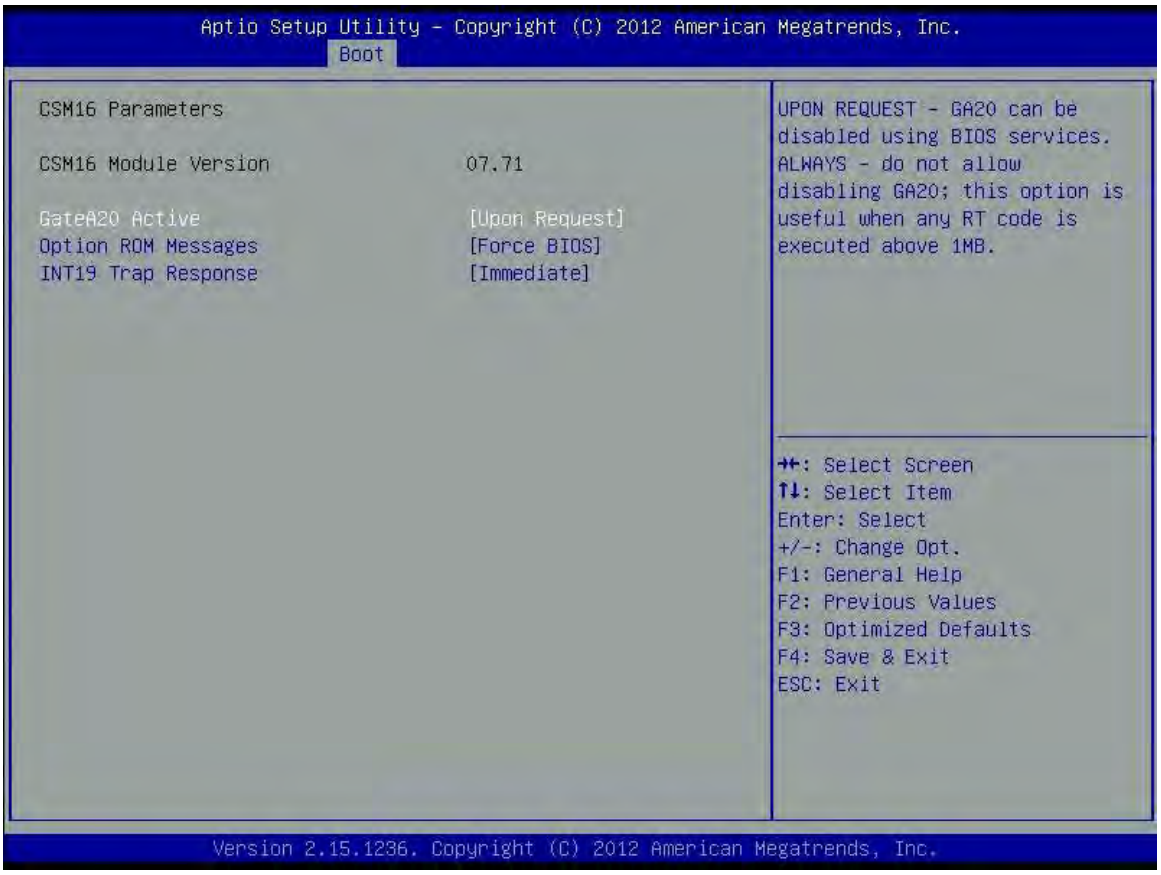
Boot option #1: Set the system boot order.

Hard Drive BBS Priorities: Set the order of the legacy devices in this group

CSM16 Parameters: CSM16 configuration Enable/disable, option ROM execution settings, etc.

CSM Parameters : 0pROM execution, boot options filter, etc.

4.6.1 CSM16 Parameters



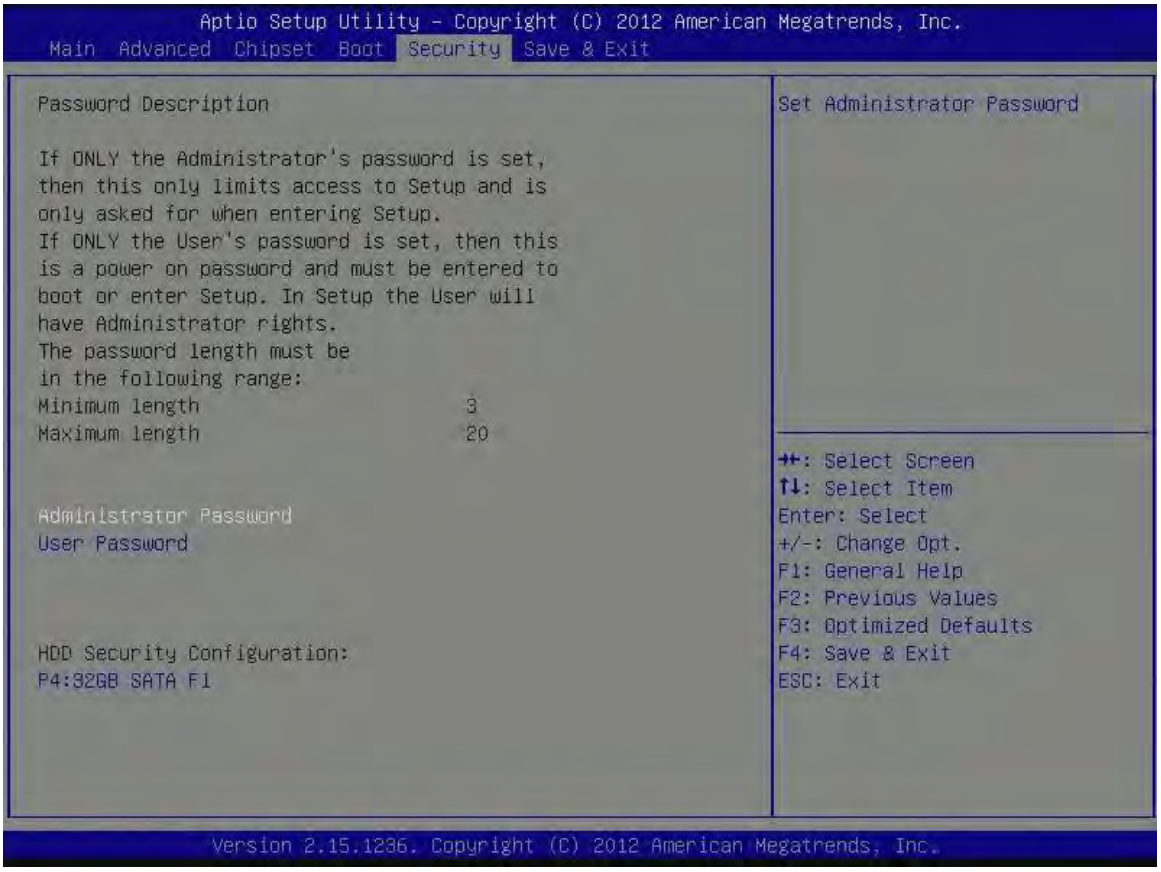
GateA20 Active: UPON REQUEST – GA20 can be disabled using BIOS serices.ALWAYS-do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages: Set display mode for option ROM.

INT19 Trap Response: BIOS reaction on INT19 trapping by option ROM: IMMEDIATE-execute the trap right away; POSTPONES-execute the trap during legacy boot.

4.7 Security

Use the Security Menu to establish system passwords



Administrator Password: Set administrator password.

User Password: Set User Password.

HDD Security Configuration: HDD Security Configuration for selected drive

4.8 Save and exit

This screen provides functions for handling changes made to the BIOS settings and the exiting of the Setup program.

Save Changes and Exit: Exit system setup after saving the changes.
Discard Changes and Exit: Exit system setup without saving any changes.
Save Changes and Reset: Reset the system after saving the changes.
Discard Changes and Reset: Reset system setup without saving any changes.

Save Options

Save Changes: Save Changes done so far to any of the setup options.
Discard Changes: Discard Changes done so far to any of the setup options.

Restore Defaults: Restore/Load Default values for all the setup options.
Save as User Defaults: Save the changes done so far as User Defaults.
Restore user Defaults: Restore the User Defaults to all the setup options.

Launch EFI Shell from filesystem device: Attempts to launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.