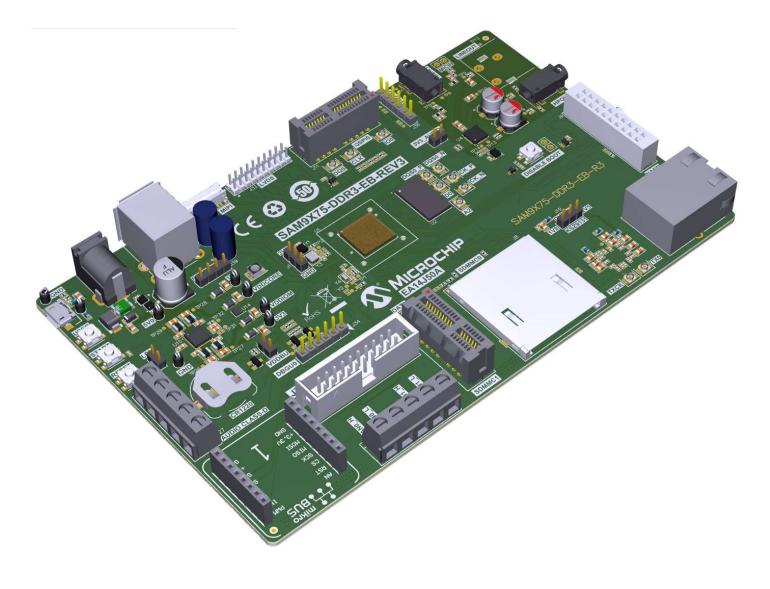


# SAM9X75-DDR3-EB

# SAM9X75-DDR3-EB Early Adopters Guide

#### Scope

This guide provides essential information on the overall design and functions of the SAM9X75-DDR3 Engineering Board



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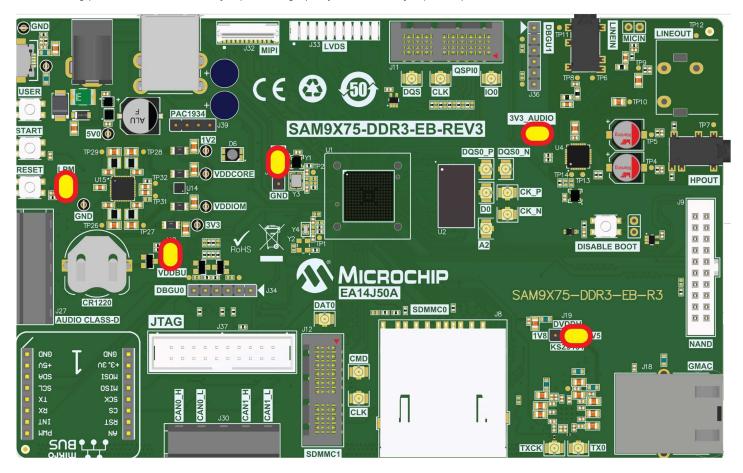
### **Main features**

Characteristics	Specification				
Processor	SAM9X75 240-ball TFBGA, 11x11mm body,	pitch -0.65mm			
Clock speed	- 24MHz DSC6xx/DSC1xx MEMS - 32.768KHz. Crystal - 25MHz Clock generator for two PHY ETH.	- DSC1001CI5-024.0000 Microchip - NX2012SA 032.768 NDK (DNP) - DSC1001DI5-025.0000 Microchip			
Memory	<ul><li>- 256MB DDR3L @266MHz 16bit</li><li>- 4-bit PCIe eMMC adapter</li><li>- 1 * EEPROM w/ Mac Address</li><li>- 8-bit PCIe OctaSPI adapter</li></ul>	- MT41K256M16 Micron - 1 * 24AA025E48 Microchip			
USB	- USB 2.0 Host/Device High Speed μAB - 2*USB 2.0 Host High Speed A-type				
Ethernet	- Gigabit Ethernet connector + RGMII PHY (10/100/1000 GMAC0)	- KSZ9131RNXV Microchip			
Audio	<ul><li>Stereo CLASS D amplifier</li><li>Stereo Audio CODEC</li></ul>	- WM8731 Cirrus Logic			
CAN	- 2*CAN Interface	- MCP2542FD Microchip			
Power monitor	- PAC1934				
Debug	- UART FTDI - JTAG/ICE debug interface				
Board supply	- 5 Vdc from USBA (optional) - 5 Vdc from DC Jack	- Automatic power switch. DC Jack prioritized			
<b>Board Monitor</b>	- RGB leds (Blue, Green, Red)				
Expansion	- 4 * Push button switches (DIS_BOOT, NRST	, nSTART, User_BT)			
	- RPi CM4 DSI CSI PF-22 Camera Connector				
	- SD-Card Slot				
	- 1 * MikroBUS				
Power	- LVDS 20-pin Connector				
particularity	- Battery (Backup VDDBU), minimum 1 day retention - Power Management Unit MCP16502TAB				
Temperature	- Operating: -40° to +85° C				
Relative humidity	- 0 to 90% (non condensing)				
Dimensions:	- PCB 160 x 100 mm, FR4, 4 layers				
RoHS status:	- Compliant				

#### **Functions overview** J41 J39 J1 PMIC LPM PAC1934 24MHz I<sup>2</sup>C **AUDIO CODEC** pull-down standby control D6 J26 SW3, SW4, SW1 J22 **RGB LED DVDD** shunt user buttons microphone-in J28 USB-A port J24 J25 J11 & 5Vcc input J29 J38 J33 OCTAL/QUAD line-in line-out USB-B port MIPI port LVDS port SPI port J23 **J36** J38 OCTAL/QUAD DBGU1 loudspeaker 5Vcc SPI probe **UART** port out input points 3V3\_AUDIO SAM9X75-DDR3-EB-REV3 DQS0\_P DQS0\_N **HPOUT** CK\_P EVE DEVE 0 0 0 0 0 0 0 0 /ICROCHIP 0 0 DBGU0 EA14J50A SAM9X75-DDR3-EB-R3 0 0 CR1220 0 0 SDMMC0 J27 AUDIO CLASS-D 0 0 **JTAG** NAND ₩ŒS ISOW ВХ TXCK J40 J31 J30 J8 TX, CLK J18 J9 **VDDBU** mikroBUS dual CAN port **SDcard** testpoints **RJ45** NAND Flash shunt slot socket interface **VDDBU** J36 J37 battery SW2, J35 J19 DBGU1 SAM9X75 eMMC boot disable **DVDD UART** port JTAG port interface control 1.8/2.5 V J27 & testpoints DDR3L selector audio Class-D testpoints stereo **GIGABIT** output ETHERNE T

### **Default jumper settings**

The following picture shows the default jumper settings (red/yellow bullet = jumper ON).



Jumper	State	Function
J1	Pin 1-2 (3V3)	24MHz oscillator is enabled
J3	ON	Audio CODEC digital domain is powered
J19	Pin 2-3 (2V5)	Gigabit Ethernet is 2V5 powered
J40	ON	VDDBU is powered
J41	ON	MCP16502 PMIC input LPM is forced to logic 0

## Bill of Material

BATT HOLDER 1 CON LEMB 11	Designator	Not mounted	Description	Value	Manufacturer
C. C.G. C.G. C.G. C.G. C.G. C.G. C.G. C	BT1	mounted	BATT HOLDER 1 COIN 12MM TH 3V	HOLDER 1xCR1220	Keystone Electronics
C11, C12, C13, C14, C15, C16, C17, C18, C17, C12, C24, C24, C25, C25, C25, C25, C25, C25, C25, C25					·
C87, C87, C86, C87, C88, C101. C116, C116, C122, C124. C147, C140, C145,	C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C24, C25, C26, C33, C34, C35, C36, C37, C38, C40, C41, C43, C44, C45, C46, C47, C48, C49, C50, C51, C53, C55,		CAP CER 0.1uF 16V 10% X7S 0201	0.1uF	Murata
C28	C87, C93, C95, C97, C99, C101, C116, C118, C120, C122, C124, C138, C150, C151, C154, C155, C157, C160, C163, C164, C165, C166, C171, C174, C176, C177,		CAP CER 0.1uF 10V 10% X7R SMD 0402	0.1uF	KEMET
CAP CER 18pF 50V 5% COG SMD 0402   18pF   Murital	C28	Χ	CAP CER 0.1uF 10V 10% X7R SMD 0402	0.1uF	KEMET
C42 C54 C60 C61 C63 C94 C79, C713, C77, C81, C91 C92 S2 X CAP CER 22pF 50V 5% C9G 0201 22pF Murata C70, C73, C77, C81, C91, C92, C94, C96, C98, C100, C112, C113, C117, C119, C121, C123, C125, C126, C127, C127, C131, C132, C123, C134, C139, C140, C141, C142, C144, C145, C146, C147 C71, C72, C74, C75, C76, C76, C76, C77, C77, C77, C77, C77	1		CAP CER 20pF 50V 5% C0G SMD 0402		Yageo
C179, C181, C183, C185, C187  C82  X CAP CER 2PF 507 5% COG 0201  22pF Murata  Murata  C87  C70, C73, C77, C81, C91, C92, C94, C96, C96, C96, C96, C100, C112, C113, C117, C119, C112, C123, C123, C128, C128, C139, C140, C141, C141, C142, C133, C141, C141, C142, C133, C141, C141, C142, C133, C141, C141, C142, C133, C141, C141, C143, C141, C141, C142, C143, C141, C141, C14			CAP CER 18pF 50V 5% C0G SMD 0402	18pF	Murata
C70. C73. C77. C81. C91. C92. C94.         C96. C98. C102. C112. C113. C125. C126.         C96. C98. C102. C112. C113. C117. C119. C112. C123. C126. C126. C127. C128. C126. C126. C127. C128. C133. C134. C139. C134. C134. C132. C133. C134. C139. C134. C	C179, C181, C183, C185, C187,		CAP CER 4.7uF 10V 10% X7S SMD 0603	4.7uF	Murata
C96, C98, C100, C112, C113, C117, C119. C126, C127, C128, C13, C132, C133, C132, C132		X	CAP CER 22pF 50V 5% C0G 0201	22pF	Murata
C8B. C8B. C8B. C8B. C89. C90         CAP CER CUTUR SOV 10% X/R SMID 0402         C00 (F)         DOTH         TOK           C8S. C8B         X         Ceramic capacitor, SMID 0402, 20pF, COG, 50V, +/- 2%         20pF         Samsung           C102, C108, C109         CAP CER 1 Lif 16V 10% X/R SMID 0402         220pF         Murtal           C103, C108, C107, C110, C111, C115         CAP CER 220pF 50V 5% NP0 SMID 0402         220upF         Wurth Electronics           C104, C105         CAP ALU POLY 220uF 10V 20% SMID         220upF         Wurth Electronics           C129, C130, C135, C136         CAP CER 100000P 25V 20% X/R SMID 0402         20pF         Murata           C137         CAP CER 20pF 50V 5% COG SMID 0402         20pF         Murata           C143, C148         CAP ALU 100uF 25V 20% RAD P2.50BH11         100uF         Panasonic           C149, C153         Ceramic capacitor, SMID 0402, X7R, 50V, +/10%         4700pF         KEMET           C152, C156         15pF         Samsung         55msung           C167, C168, C169, C170, C172, C172, C174, C172, C174, C174, C174, C175, C175	C96, C98, C100, C112, C113, C117, C119, C121, C123, C125, C126, C127, C128, C131, C132, C133, C134, C139, C140, C141, C142,		CAP CER 10uF 10V 10% X7R SMD 0805	10uF	Samsung
C65, C66				0.01uF	TDK
CAP CER 220pF 50V 5% NP0 SMD 0402   220pF	C85, C86	Х		20pF	Samsung
C114, C115			CAP CER 1uF 16V 10% X7R SMD 0603	1uF	Wurth Electronics
C104, C105         CAP ALU POLY 220w F 10V 20% SMD W6.16,6Hs.8         220uF         Wurth Electronics           C129, C130, C135, C136         CAP CER 10000pF 28V 20% X7R SMD 0402         10000pF         TDK           C137         CAP CER 10000pF 29V 20% X7R SMD 0402         20pF         Murata           C143, C148         CAP ALU 100uF 25V 20% RAD P2.50BH11         100uF         Panasonic           C149, C153         Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%         4700pF         KEMET           C152, C156         Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%         15pF         Samsung           C167, C168, C169, C170, C172, 15pF         CAP CER 22uF 10V 20% X78 SMD 0805         22uF         TDK           C175         CAP ALU 330uF 25V 20% SMD F         33uF         KEMET           C175         CAP ALU 330uF 25V 20% SMD F         33uF         KEMET           CBL1         MECH HW CABLE USB Male-A to Male Micro-B         USB Male-A to Male Micro-B         DongGuan ZhanXin           D1, D2, D3, D4         D10 SCTKY B0520W3 430mV 500mA 20V SOD-B         B0520WS         Diodes           D6         D10 SCTKY B0520W3 430mV 500mA 20V SOD-B         B0520WS         Diodes           D7         D10 SCTKY STS2L40U 340mV 2A 40V DO-214AA_SMB         STV         STMicroelectronics           D8         D10 SCTKY			CAP CER 220pF 50V 5% NP0 SMD 0402	220pF	Murata
C129, C130, C135, C136				220uF	Wurth Electronics
C143, C148         CAP ALU 100uF 25V 20% RAD P2.50H11         100uF         Panasonic           C149, C153         Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%         4700pF         KEMET           C152, C156         Ceramic capacitor, SMD 0402, COG, 50V, +/-10%, 15pF         15pF         3smsung           C167, C168, C169, C170, C172, C173, C180, C182, C184, C186         CAP CER 22uF 10V 20% X7S SMD 0805         22uF         TDK           C175         CAP ALU 330uF 25V 20% SMD F         330uF         KEMET           CBL1         MECH HW CABLE USB Male-A to Male Micro-B Clear 4*         USB Male-A to Male Micro-B B DO SMALE AND	C129, C130, C135, C136		CAP CER 10000pF 25V 20% X7R SMD 0402	10000pF	TDK
C149, C153         Ceramic capacitor, SMD 0402, X7R, 50V, +/-10%         4700pF         KEMET           C152, C156         Ceramic capacitor, SMD 0402, C0G, 50V, +/-10%, 15pF         15pF         Samsung           C167, C168, C169, C170, C172, C172, C173, C180, C182, C184, C186         CAP CER 22uF 10V 20% X7S SMD 0805         22uF         TDK           C175         CAP ALU 330uF 25V 20% SMD F         330uF         KEMET           CBL1         MECH HW CABLE USB Male-A to Male Micro-B Clear 4'         USB Male-A to Male Micro-B Clear 4'         DSB Male-A to Male Micro-B R         USB Male-A to Male Micro-B B         USB Male-A to Male Micro-B DongGuan ZhanXin         DongGuan ZhanXin           D1, D2, D3, D4         DIO RECT 1M4148W 1.25V 150mA 75V SOD-323         1M4148W         Diodes           D6         DIO SCTKY B0520WS 430mV 500mA 20V SOD-323         B0520WS         Diodes           D6         DIO LED TRI RED, GREEN, BLUE 1.9V, 3V, 3V         RED, GREEN, BLUE         Cree LED           D7         DIO SCTKY STPS2L40U 340mV 2A 40V DO-214AA_SMB         STPS2L40U         STMicroelectronics           D8         DIO SCTKY STPS2L40U 340mV 2A 40V DO-214AA_SMB         STPS2L40U         STMicroelectronics           D8         DIO SCTKY STRAN BAT54C 1V@100mA 200mA 30V         BAT54CW-7-F         Diodes           F1         RES FISE, FB6, FB6, FB7, FB18, FB1, FB11, FB13, FB18, FB19, FB11			,		
C152, C156         Ceramic capacitor, SMD 0402, C0G, 50V, +/-10%, 15pF         15pF         Samsung           C167, C168, C169, C170, C172, C173, C180, C182, C184, C186         CAP CER 22uF 10V 20% X7S SMD 0805         22uF         TDK           C175         CAP CLU 330uF 25V 20% SMD F         330uF         KEMET           CBL1         MECH HW CABLE USB Male-A to Male Micro-B Clear 4'         USB Male-A to Male Micro-B B DongGuan ZhanXin         DongGuan ZhanXin           D1, D2, D3, D4         DIO RECT 1N4148W 1.25V 150mA 75V SOD-323         1N4148W         Diodes           D5         DIO SCTKY B0520WS 430mV 500mA 20V SOD-323         B0520WS         Diodes           D6         DIO LED TRI RED, GREEN, BLUE 1.9V, 3V, 3V 20mA, 20mA, 20mA, 20mA, 20mA SMD 4-PLCC         RED, GREEN, BLUE         Cree LED           D7         DIO SCTKY STPS2L40U 340mV 2A 40V DO-214AA 2, SMB         STPS2L40U         STMicroelectronics           D8         DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123         5.1V         ON Semiconductor / Fairchild           D9         DIO SCTKYARR BAT54C 1V@100mA 200mA 30V SOT-23-3         BAT54CW-7-F         Diodes           F1         RES FUSE RESETTABLE 2A 12V PTC SMD 1812         2A         Littleffuse           FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata	,				
C152, C156	C149, C153		, , , , , , , , , , , , , , , , , , , ,	4700pF	KEMEI
C173, C180, C182, C184, C186         CAP CER 22UT 10V 20% X7S SMD 0605         Z2UF         TDK           C175         CAP ALU 330UF 25V 20% SMD F         330UF         KEMET           CBL1         MECH HW CABLE USB Male-A to Male Micro-B Clear 4'         USB Male-A to Male Micro-B B         DSB Male-A to Male Micro-B B         DSB Male-A to Male Micro-B B         DSB Male-A to Male Micro-B B         DIOS GENT META NOT SOD-323         1N4148W         Diodes           D6         DIO SCTKY B0520WS 430mV 500mA 20V SOD-323         B0520WS         Diodes           D6         DIO LED TRI RED, GREEN, BLUE 1.9V, 3V, 3V 20mA, 20mA	·			15pF	Samsung
CBL1         MECH HW CABLE USB Male-A to Male Micro-B Clear 4'         USB Male-A to Male Micro-B B National Micro-B B National Micro-B B National Micro-B National Micro			CAP CER 22uF 10V 20% X7S SMD 0805	22uF	TDK
DI	C175				KEMET
DIO SCTKY B0520WS 430mV 500mA 20V SOD-323  DIO LED TRI RED, GREEN, BLUE 1.9V, 3V, 3V 20mA, 20mA, 20mA SMD 4-PLCC  DIO SCTKY STPS2L40U 340mV 2A 40V DO-214AA_SMB  DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123  DIO SCTKYARR BAT54C 1V@100mA 200mA 30V SOT-23-3  F1 RES FUSE RESETTABLE 2A 12V PTC SMD 1812  PB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18  J1, J19  CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT  J2, J3, J4, J5, J6, J7, J10, J13, J14, CON RE Coaxial Ultra Miniature Male SMD VERT  J2 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold  J0 SCTKY B0520WS 430mV 2A 40V DO-3124 Female 2x10  BAT54CW-7-F  Diodes  STMicroelectronics  STMicroellectronics  STMicroellectronics  STMicroellectronics  STMicroellectronics  STMicroellectronics  STMICroel			Clear 4'	В	DongGuan ZhanXin
Dio	D1, D2, D3, D4			1N4148W	Diodes
D6         20mA, 20mA, 20mA, 20mA SMD 4-PLCC         RED, GREEN, BLUE         Cree LED           D7         DIO SCTKY STPS2L40U 340mV 2A 40V DO-214AA_SMB         STPS2L40U         STMicroelectronics           D8         DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123         5.1V         ON Semiconductor / Fairchild           D9         DIO SCTKYARR BAT54C 1V@100mA 200mA 30V SOT-23-3         BAT54CW-7-F         Diodes           F1         RES FUSE RESETTABLE 2A 12V PTC SMD 1812         2A         Littelfuse           FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata           J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J16, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	D5			B0520WS	Diodes
D7         214AA_SMB         STPS2L40U         STMicroelectronics           D8         DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123         5.1V         ON Semiconductor / Fairchild           D9         DIO SCTKYARR BAT54C 1V@100mA 200mA 30V SOT-23-3         BAT54CW-7-F         Diodes           F1         RES FUSE RESETTABLE 2A 12V PTC SMD 1812         2A         Littelfuse           FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata           J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	D6			RED, GREEN, BLUE	Cree LED
D8         DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123         5.1V         Fairchild           D9         DIO SCTKYARR BAT54C 1V@100mA 200mA 30V SOT-23-3         BAT54CW-7-F         Diodes           F1         RES FUSE RESETTABLE 2A 12V PTC SMD 1812         2A         Littelfuse           FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata           J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J16, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	D7			STPS2L40U	
SOT-23-3  F1 RES FUSE RESETTABLE 2A 12V PTC SMD 1812 2A Littelfuse  FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18  J1, J19 CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT HDR-2.54 Male 1x3 Samtec  J2, J3, J4, J5, J6, J7, J10, J13, J14, CON RF Coaxial Ultra Miniature Male SMD VERT RF Coaxial U.FL Male Hirose  J8 CON HDR-2.54 Female 2x10 Gold TH HDR-2.54 Female 2x10 Sullins	D8		DIO ZNR MMSZ4689 5.1V 500mW SMD SOD-123	5.1V	
FB1, FB2, FB3, FB4, FB5, FB6, FB7, FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata           J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J16, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	D9			BAT54CW-7-F	Diodes
FB8, FB9, FB10, FB11, FB12, FB13, FB14, FB15, FB16, FB17, FB18         FERRITE 120R@100MHz 2A SMD 0603         120R         Murata           J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J16, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	F1		RES FUSE RESETTABLE 2A 12V PTC SMD 1812	2A	Littelfuse
J1, J19         CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT         HDR-2.54 Male 1x3         Samtec           J2, J3, J4, J5, J6, J7, J10, J13, J14, J15, J16, J17, J20, J21         CON RF Coaxial Ultra Miniature Male SMD VERT         RF Coaxial U.FL Male         Hirose           J8         12 (9 + 3) Position Card Connector SD Surface Mount, Right Angle Gold         SD         Amphenol ICC / FCI           J9         CON HDR-2.54 Female 2x10 Gold TH         HDR-2.54 Female 2x10         Sullins	FB8, FB9, FB10, FB11, FB12, FB13,		FERRITE 120R@100MHz 2A SMD 0603	120R	Murata
J15, J16, J17, J20, J21  J8			CON HDR-2.54 Male 1x3 AU 5.84MH TH VERT	HDR-2.54 Male 1x3	Samtec
J9 Mount, Right Angle Gold SD Amplied ICC / FCI  J9 CON HDR-2.54 Female 2x10 Gold TH HDR-2.54 Female 2x10 Sullins	J2, J3, J4, J5, J6, J7, J10, J13, J14,			RF Coaxial U.FL Male	Hirose
J9 CON HDR-2.54 Female 2x10 Gold TH HDR-2.54 Female 2x10 Sullins	J8			SD	Amphenol ICC / FCI
J11, J12 CONN EDGE PCle 1mm 36P Female TH VERT EDGE 36P Female Samtec	J9			HDR-2.54 Female 2x10	Sullins
	J11, J12		CONN EDGE PCIe 1mm 36P Female TH VERT	EDGE 36P Female	Samtec

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110		CON MODULAR JACK RJ45 10G MAGNETICS	MODIII AD DIAE	Adam Tech
J18		2xLEDs SHIELD TH R/A	MODULAR RJ45	
J22, J35	Х	CON HDR-2.54 Male 1x2 Tin 5.84MH TH VERT	HDR-2.54 Male 1x2	Sullins Tangility International Corn
J23, J24 J25	X	CON JACK Stereo Phone 3.5mm Female R/A SMT CON JACK 2xPhono 3.2mm Red Female TH R/A	JACK Stereo Phone 3.5mm PJRAS1X2S01X	Tensility International Corp Switchcraft
J26, J40, J41		CON HDR-2.54 Male 1x2 Tin 5.84MH TH VERT	HDR-2.54 Male 1x2	Sullins
J27, J30		CON TERMINAL 5mm 1x5 Female 16-30AWG	282836-5	TE Connectivity
J28		13.5A TH R/A CON USB2.0 Micro-B Female SMD R/A	USB2.0 Micro-B Female	Wurth Electronics
J29		CON USB2.0 STD-A DUAL FEMALE TH R/A	USB-A-D-RA	Wurth Electronics
J31		SOCKET mikroBUS HOST DIP 16 TH	mikroBUS HOST	Sullins
J32		CON FFC/FPC 501951 0.5mm 22P Female SMD VERT	501951-2230	Molex
J33		CON HDR-2 Male 2x10 Gold 4MH TH VERT	HDR-2 Male 2x10	TE Connectivity AMP
J34, J36		CON HDR-2.54 Male 1x6 Gold 5.84MH TH VERT	HDR-2.54 Male 1x6	Amphenol ICC / FCI
J37		CON HDR-2.54 Male 2x10 Gold Shroud 9.1MH TH VERT	HDR-2.54 Male 2x10	Sullins
J38		CON POWER 2.1mm 5.5mm Switch Slotted TH R/A	2.1mm	Memory Protection Devices
J39		CON HDR-2.54 Male 1x4 Gold 5.84MH TH VERT	HDR-2.54 Male 1x4	Wurth Electronics
JP1, JP2, JP3		MECH HW JUMPER 2.54mm 1x2	Shunt 2.54mm 1x2	3M
JP4		MECH HW JUMPER 2.54mm 1x2 GOLD	Shunt 2.54mm 1x2	Wurth Electronics
L1, L2, L3, L4		INDUCTOR 1.5uH 3.5A 20% SMD 1008	1.5uH	Murata
LABEL1		LABEL, ASSY W/REV LEVEL (SMALL MODULES) PER MTS-0002	LABEL Need Help Small	
PAD1, PAD2, PAD3, PAD4, PAD5, PAD6	Х	MECH HW RUBBER PAD Cylindrical flat top D16.51H10.16 Black	D16.51H10.16	Bumper Specialties
Q1, Q3		TRANS FET P-CH DMG2305UX-13 -20V -4.2A 0.052R 1.4W SOT-23-3	DMG2305UX-13	Diodes
Q2, Q4, Q13, Q14, Q15, Q18, Q19, Q20, Q21		MCHP ANALOG MOSFET N-CH TN2106 60V 280mA 360mW 2.5R SOT23-3	TN2106	Microchip Technology
Q5, Q7, Q9, Q11		TRANS FET P-CH SSM3J56ACT 20V 1.4A 0.39R 0.5W SOT-883	SSM3J56ACT	Toshiba
Q6, Q8, Q10, Q12		TRANS FET N-CH SSM3K56ACT 20V 1.4A 0.235R 0.5W SOT-883	SSM3K56ACT	Toshiba
Q16, Q17		TRANS FET DUAL P+P SIA913ADJ-T1-GE3 -12V -4.5A 6.5W SC70-6L	SIA913ADJ-T1-GE3	Vishay Siliconix
R1, R2, R3, R4, R5, R6, R8, R10, R11, R12, R14, R15, R17, R19, R20, R22, R23, R25, R28, R30, R31, R33, R34, R35, R36, R94, R104, R161, R162, R170, R171		RES TKF 22R 1% 1/20W SMD 0402	22R	Panasonic
R7, R9, R24, R27		RES TKF 2.2k 1% 1/10W SMD 0402	2.2k	Panasonic
R13, R16, R18, R21, R26, R29, R32	Х	RES TKF 22R 1% 1/20W SMD 0402	22R	Panasonic
R37, R39, R43, R45, R50, R105, R107, R108, R132, R134, R153	Х	RES TKF 0R SMD 0402	0R	Panasonic
R38		RES TKF 5.62K 1% 1/20W SMD 0201	5.62K	Yageo
R40		RES TKF 4.02k 1% 1/20W SMD 0201	4.02k	Yageo
R41, R42, R112		RES TKF 51R 1% 1/5W SMD 0402	51R	Panasonic
R44, R46, R49, R106, R128, R130, R133, R154, R191		RES TKF 0R SMD 0402	0R	Panasonic
R47, R48	Х	RES TKF 1M 1% 1/10W SMD 0402	1M	Panasonic
R51		RES TKF 23.2k 1% 1/20W SMD 0201	23.2k	Panasonic
R52, R53		RES TKF 1k 1% 1/20W SMD 0201	1k	Panasonic
R54		RES TKF 240R 1% 1/20W SMD 0201	240R	Yageo
R55, R56, R57, R58, R59, R60, R74, R75, R79, R80, R81, R82, R113, R114		RES TKF 953R 1% 1/20W SMD 0201	953R	Vishay
R114 R61, R62, R63, R64, R119, R120, R121, R126, R127, R129, R131		RES TKF 47k 1% 1/10W SMD 0402	47k	Panasonic
R65, R66, R67, R68, R69, R70, R76, R77, R83, R84, R85, R89, R90, R91, R92, R93, R135, R136, R137, R138, R139, R140, R141, R142, R145, R146, R147, R148, R181, R183, R189, R190, R193, R197, R198, R199		RES TKF 10k 1% 1/10W SMD 0402	10k	Panasonic
R71, R78, R109, R110, R179		RES TKF 100R 1% 1/16W SMD 0402	100R	Yageo
R72, R73, R88, R176, R196	Х	RES TKF 10k 1% 1/10W SMD 0402	10k	Panasonic
R86, R87, R102, R194, R195		RES TKF 1k 1% 1/10W SMD 0402	1k	Panasonic
R95, R96, R97, R98, R99, R100	V	RES TKF 33R 1% 1/10W SMD 0402	33R	Panasonic
R101, R103	Х	RES TKF 1k 1% 1/10W SMD 0402	1k	Panasonic
R111 R115		RES TKF 6.04k 1% 1/10W AEC-Q200 SMD 0402 RES TKF 680R 1% 1/16W SMD 0402	6.04k 680R	Panasonic Rohm
R116		RES TKF 680K 1% 1/16W SMD 0402 RES TKF 40.2k 1% 1/10W SMD 0603	40.2k	Yageo
R117, R118		RES TKF 1M 1% 1/10W SMD 0402	1M	Panasonic
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D400 D400 D404 D405		DEC TIVE 5 Ct. 40/ 4/40/M CMD 0000	F Ck	Varia
R122, R123, R124, R125		RES TKF 5.6k 1% 1/10W SMD 0603	5.6k	Yageo
R143, R163, R172, R173, R174, R175, R182, R188, R192		RES TKF 100k 1% 1/10W SMD 0402	100k	Panasonic
R144		RES TKF 200k 1% 1/10W SMD 0402	200k	Panasonic
R149, R150, R151, R152		RES TKF 62R 1% 1/2W SMD 1210	62R	Yageo
R155, R156, R159, R160, R164, R165, R168, R169		RES TKF 3.3k 1% 1/10W SMD 0402	3.3k	Panasonic
R157, R158, R166, R167	Х	RES TKF 100k 1% 1/10W SMD 0402	100k	Panasonic
R177		RES TKF 750R 1% 1/5W SMD 0402	750R	Vishay Dale
R178, R180		RES TKF 330R 1% 1/16W SMD 0402	330R	Yageo
R184, R185, R186, R187		RES SHUNT 0.01R 1% 1/4W 1206	0.01R	Yageo
SW1, SW2, SW3, SW4		SWITCH TACT SPST 16V 100mA 7914G-1-032E SMD	SPST	Bourns
TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP30		MISC, TEST POINT MULTI PURPOSE MINI BLACK	TP LOOP Black	Keystone Electronics
U1		MCHP MCU 32-BIT 800 MHz 64kB SAM9X70- V/4PB TFBGA240	SAM9X70-V/4PB	Microchip Technology
U2		IC MEMORY MT41K128M16JT-125 AAT:K DDR3L 2GBIT 800MHZ FBGA-96	MT41K128M16JT-125 AAT:K	Micron Technology
U3		MCHP INTERFACE KSZ9131RNXI 10/100/1000BASE-T QFN-48	KSZ9131RNXI	Microchip Technology
U4		IC AUDIO WM8731CSEFL Portable CODEC QFN- 28	WM8731CSEFL	Cirrus Logic Wolfson
U5		MCHP MEMORY SERIAL EEPROM 2kb l2C 24AA02E48T-E/OT SOT-23-5	24AA02E48T-E/OT	Microchip Technology
U6, U7		MCHP ANALOG POWER SWITCH 5.5V 0.5A MIC2095-1YMT-TR MLF-6	MIC2095-1YMT	Microchip Technology
U8, U9		MCHP INTERFACE CAN MCP2542FDT-E/MF DFN-8	MCP2542	Microchip
U10, U12		IC BUFFER 74AHC1G126SE-7 SINGLE SC-70-5	74AHC1G126	Diodes
U14		MCHP ANALOG POWER CURRENT SENSE MONITOR PAC1934T-I/J6CX WLCSP-16	PAC1934	Microchip Technology
U15		MCHP ANALOG PMIC SWITCHER Buck ADJ MCP16502TAE-E/S8B QFN-32 for SAMA9X6 MPU	MCP16502TAE-E/S8B	Microchip
Y1		MCHP CLOCK OSCILLATOR SINGLE 24MHz DSC1001DL5-024.0000 VDFN-4	24MHz	Microchip Technology
Y2	Х	MCHP CLOCK OSCILLATOR SINGLE 32.768Hz DSC6083CE2A-032K768 SMD DFN-4	32.768Hz	Microchip
Y3		CRYSTAL 24MHz 8pF SMD L3.2W2.5H0.8	24MHz	ECS International
Y4		CRYSTAL 32.768kHz 12.5pF SMD FK12AEIHI	32.768KHz	Fox Electronics
Y5	Х	CRYSTAL 25MHz 20pF SMD L3.2W2.5H0.8	25MHz	ECS International
Y6		MCHP CLOCK OSCILLATOR SINGLE 25MHz DSC1003DL5-025.0000 VDFN-4	25 MHz	Microchip Technology
Y7		MCHP CLOCK OSCILLATOR SINGLE 12.288MHZ DSC1001DL5-012.2880 VDFN-4	12.288MHz	Microchip Technology

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