# MV5422 CPU Module

# Hardware Specification Brief

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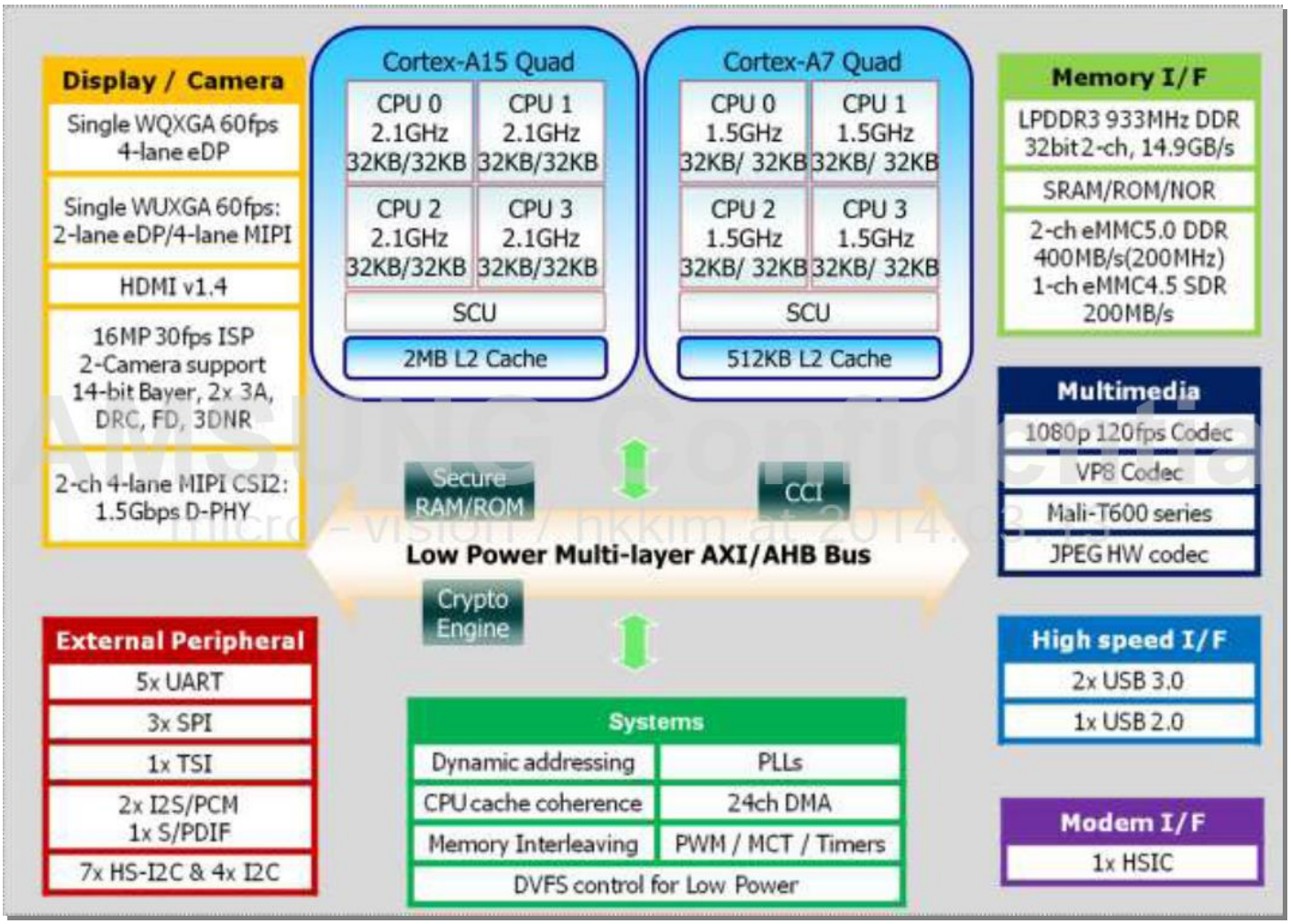
# 1. MV5422 CPU Module 소개

본 제품은 삼성 Exynos5 Octa Core / Cortex (A15 2.1GHz Quad / A7 1.5GHz Quad)와 LPDDR3 Memory 및 eMMc, PMIC로 구성 된 Total Embedded Solution 모듈이다.

기본적으로 ARM사의 Cortex-A15/A7 Core를 채택한 CPU로 제작된 CPU Module이기 때문에 기존에 ARM9, ARM11 기반의 Binary Compatibility를 제공 해주는 ARM Core로써 ARM Cotex-A15 Quad CPU, 32KB (Instruction) / 32KB (Data) Cache, 2MB L2 Cache, ARM Cotex-A7 Quad CPU, 32KB (Instruction) / 32KB (Data) Cache, 512KB L2 Cache 구조를 가진 모듈이다.

MV5422 CPU 모듈은 이러한 Cortex-A15/A7 코어를 내장한 CPU의 모든 기능을 확장해서 구현할 수 있도록 거의 모든 Peripheral Pin을 Connector로 Pin OUT하여 설계 되어 있다. USB HOST/Device 3.0, USB Device 2.0 와 기본적으로 내장된 Full HD급, Multi-Format Codec 1080p@30fps MPEG2/4, H.264/H.263, VC-1 등이 지원되는 것은 물론이고, HDMI 1.4a, Camera Interface, WQXGA 2560x1600 eDP Interface, MiPi CSI 및 DSI가 가능하게 되어 있다. 또한 1600Mbps LPDDR3까지 지원하는 RAM 인터페이스의 CPU모듈에 내장하고 있으며, 물리적 사이즈는 2GB의 메모리를 내장하고 있다.



## 2. MV5422 CPU 모듈 제품 사양

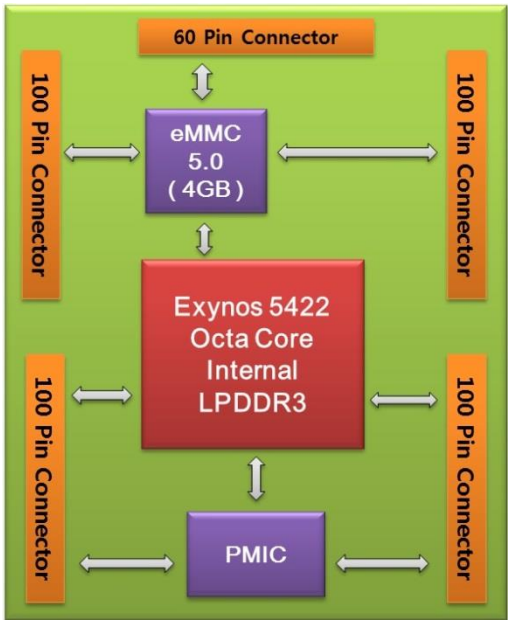
| ITEM | Specification | Description |
|---|---|---|
| CPU | Exynos 5422<br>Octa Core | **ARM Cortex-A15 / A7** Octa Core<br>(Cortex-A15 2.1GHz Quad Core / A7 1.5GHz Quad Core)<br><br>**- Cortex-A15 2.1GHz Quad Core**<br>ARM Cotex-A15 Quad CPU, 32KB (Instruction) / 32KB (Data) Cache, 2MB L2 Cache<br><br>**- Cortex-A7 1.5GHz Quad Core**<br>ARM Cotex-A7 Quad CPU, 32KB (Instruction) / 32KB (Data) Cache, 512KB L2 Cache<br><br>Internal on-chip ROM 96KB, Internal on-chip SRAM 336KB<br>2.1GHz Operation Frequency, 14x15.5mm FCMSP PoP<br>0.4mm ball pitch. 1155 ball-outs |
| Internal LPDDR3 Memory | LPDDR3 | 32Bit LPDDR3 1GB X 2Channel=(2GB) |
| **EMMC Memory** | KLM4G1FEAC-B031 | 4GB eMMc Ver5.0 적용, 용량 확장 가능<br>0.5mm Ball Pitch, 153 Ball 11.5mm x 13mm |
| PMIC | S2MPS11 | Step down buck Converter 10ports<br>Back Booster Converter 1port, LDO 38 ports<br>Input Voltage: 2.7~5.0V BGA<br>169 pins 5.35x5.35mm package |
| Connector A | AXK700147G x 4<br>AXK760147 x 1 | 560 Pin (0.4mm Pitch 100 Pin x 4),<br>(0.4mm Pitch 60Pin x 1) |
| Dimension | (L x W x T) | 32mm x 54mm x 1mm<br>( 결합시 B to B 높이 : 1.5mm) |
| PCB 사양 | PCB | 10 Layer Build up |

OS: Android 4.4 / Linux 3.10.9 포팅 지원

- CPU가 제공하는 모든 기능 구현 가능하도록 확장 커넥터 제공
- 응용분야 : NAVI/DMB, 모바일제품 /PMP, 지능형로봇 , 홈네트워크 , 첨단의료기기 ,
  보안시스템 , 시스템제어 , 자동화 단말기 , 산업제어 외 임베디드 제품관련 모든기기.

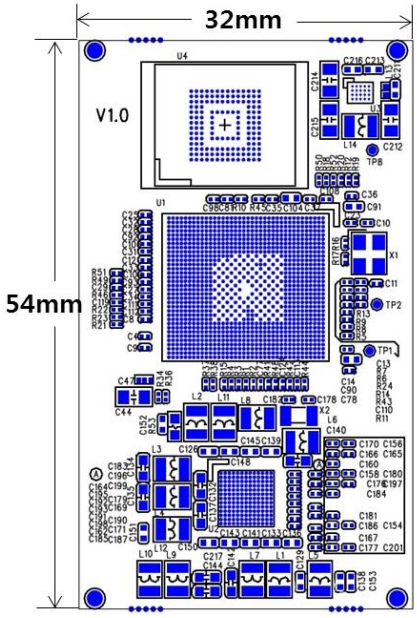
## 3. MV5422 CPU모듈 Block Diagram

본 제품은 CPU보드에 LPDDR3 메모리, eMMC Memory, PMIC를 제외한 나머지 모든 기능을 BASE 보드에서 구현 할 수 있도록 board to board connector형태로 만들어져 있다. 아래 그 Block Diagram을 간단히 예시 한다.

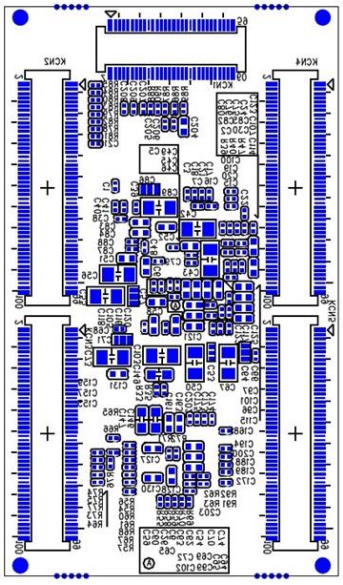


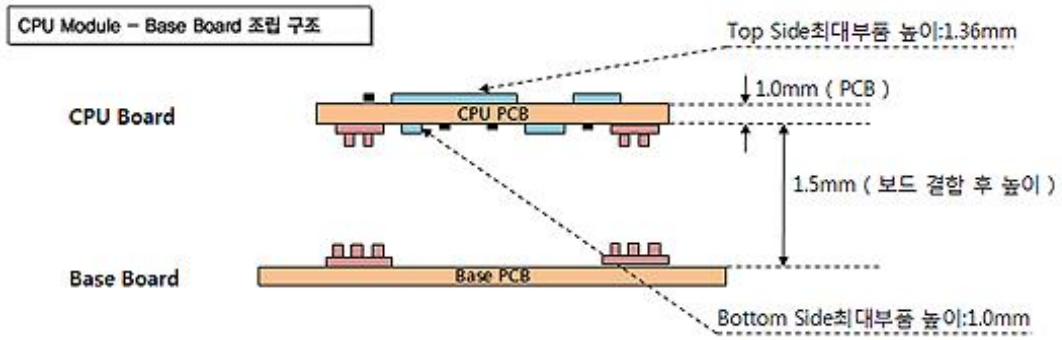

**MV5422 CPU Module Block Diagram**

TOP Side Image




Bottom Side Image




CPU Module – Base Board 조립 구조
Top Side최대부품 높이:1.36mm
1.0mm ( PCB )
CPU Board
CPU PCB
1.5mm ( 보드 결합 후 높이 )
Base Board
Base PCB
Bottom Side최대부품 높이:1.0mm

## 4. Board Connector Pin Map

| KCN1(1~50) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 2 | 1 | GND | | |
| MMC Ch1 | XMMC1INTN | GPD1_1 | 4 | 3 | GPC1_0 | XMMC1CLK | |
| | XMMC1WP | GPD1_3 | 6 | 5 | GPC1_1 | XMMC1CMD | MMC Ch1 |
| | XMMC1BEPW | GPB4_6 | 8 | 7 | GND | | |
| | XMMC1CDN | GPC1_2 | 10 | 9 | GPC1_3 | XMMC1DATA_0 | |
| | GND | | 12 | 11 | GPC1_4 | XMMC1DATA_1 | |
| | XMMC1DATA_4 | GPD1_4 | 14 | 13 | GPC1_5 | XMMC1DATA_2 | |
| | XMMC1DATA_5 | GPD1_5 | 16 | 15 | GPC1_6 | XMMC1DATA_3 | |
| | XMMC1DATA_6 | GPD1_6 | 18 | 17 | GND | | |
| | XMMC1DATA_7 | GPD1_7 | 20 | 19 | GPC1_7 | XMMC1RDQS | |
| EBI | GND | | 22 | 21 | GND | | |
| | XSRAMFCLE | GPY2_0 | 24 | 23 | GTC6_6 | XuhostOVERCUR | USB 2.0 |
| | XSRAMFAL | GPY2_1 | 26 | 25 | GTC6_5 | XuhostPWREN | |
| | XSRAMFRNB_0 | PY2_2 | 28 | 27 | | UDRD3_1_OVERCUR_U2 | USB 3.0 |
| | XSRAMFRNB_1 | GPY2_3 | 30 | 29 | ETC5_6 | UDRD3_1_VBUSCTRL_U2 | |
| | XSRAMFRNB_2 | GPY2_4 | 32 | 31 | ETC5_7 | UDRD3_1_VBUSCTRL_U3 | |
| | XSRAMFRNB_3 | GPY2_5 | 34 | 33 | | UDRD3_0_OVERCUR_U2 | |
| | GND | | 36 | 35 | ETC5_2 | UDRD3_0_VBUSCTRL_U2 | |
| | UART0_RXD | GPA0_0 | 38 | 37 | ETC5_3 | UDRD3_0_VBUSCTRL_U3 | |
| UART | UART0_TXD | GPA0_1 | 40 | 39 | | USB_VBUS | USB HOST |
| | UART0_TXD | GPA0_3 | 42 | 41 | | XuhostDM | |
| | UART0_CTSn | GPA0_2 | 44 | 43 | | XuhostDP | |
| | XURXD_1 | GPA0_4 | 46 | 45 | GND | | |
| | XUTXD_1 | GPA0_5 | 48 | 47 | GPB3_1 | XI2C0SCL | I2C |
| | XURTSN_1 | GPA0_7 | 50 | 49 | GPB3_0 | XI2C0SDA | |

| KCN1(51~60) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| UART | XUCTSN_1 | GPA0_6 | 52 | 51 | GPB3_3 | XI2C1SCL | I2C |
| | XURXD_2 | GPA1_0 | 54 | 53 | GPB3_2 | XI2C1SDA | |
| | XUTXD_2 | GPA1_1 | 56 | 55 | XI2C8SCL | GPB3_5 | |
| | GND | | 58 | 57 | XI2C8SDA | GPB3_4 | |
| | GND | | 60 | 59 | GND | | |

| KCN2(1~50) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 2 | 1 | GND | | |
| | XMMC2BIUVR | GPC4_1 | 4 | 3 | GPY1_0 | XSRAMBEN_0 | |
| MMC_Ch2 | XMMC2CDN | GPC2_2 | 6 | 5 | GPY1_1 | XSRAMBEN_1 | |
| | XMMC2CLK | GPC2_0 | 8 | 7 | GPY1_2 | XSRAMWAITN | EBI |
| | XMMC2CMD | GPC2_1 | 10 | 9 | GPY1_3 | SRAMDATA_RDN | |
| | XMMC2DATA_0 | GPC2_3 | 12 | 11 | GPY0_0 | XSRAMCSN_0 | |
| | XMMC2DATA_1 | GPC2_4 | 14 | 13 | GPY0_0 | XSRAMCSN_0 | |
| | XMMC2DATA_2 | GPC2_5 | 16 | 15 | GPY0_1 | XSRAMCSN_1 | |
| | XMMC2DATA_3 | GPC2_6 | 18 | 17 | GPY0_2 | XSRAMCSN_2 | |
| | MMC2WP | GPC4_0 | 20 | 19 | GPY0_4 | XSRAMOEN | |
| | GND | | 22 | 21 | GPY0_5 | XSRAMWEN | |
| | XMIPI0MDN3 | | 24 | 23 | GPY3_0 | XSRAMADDR_0 | |
| MPI DSI | XMIPI0MDP3 | | 26 | 25 | GPY3_1 | XSRAMADDR_1 | |
| Ch0 | GND | | 28 | 27 | GPY3_2 | XSRAMADDR_2 | |
| | XMIPI0MDN2 | | 30 | 29 | GPY3_3 | XSRAMADDR_3 | |
| | XMIPI0MDP2 | | 32 | 31 | GPY3_4 | XSRAMADDR_4 | |
| | GND | | 34 | 33 | GPY3_5 | XSRAMADDR_5 | |
| | XMIPI0MDNCLK | | 36 | 35 | GPY3_6 | XSRAMADDR_6 | |
| | XMIPI0MDPCLK | | 38 | 37 | GPY3_7 | XSRAMADDR_7 | |
| | GND | | 40 | 39 | GND | | |
| | XMIPI0MDN1 | | 42 | 41 | GPY4_0 | XSRAMADDR_8 | |
| | XMIPI0MDP1 | | 44 | 43 | GPY4_1 | XSRAMADDR_9 | |
| | GND | | 46 | 45 | GPY4_2 | XSRAMADDR_10 | |
| | XMIPI0MDN0 | | 48 | 47 | GPY4_3 | XSRAMADDR_11 | |
| | XMIPI0MDP0 | | 50 | 49 | GPY4_4 | XSRAMADDR_12 | |

| KCN2(51~100) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 52 | 51 | GPY4_5 | XSRAMADDR_13 | |
| MIPI CSI | MAINCAM_MIPI_D3_N | | 54 | 53 | GPY4_6 | XSRAMADDR_14 | |
| Ch0 | MAINCAM_MIPI_D3_P | | 56 | 55 | GPY4_7 | XSRAMADDR_15 | EBI |
| | GND | | 58 | 57 | GND | | |
| | MAINCAM_MIPI_D2_N | | 60 | 59 | GPY5_0 | XSRAMDATA_0 | |
| | MAINCAM_MIPI_D2_P | | 62 | 61 | GPY5_1 | XSRAMDATA_1 | |
| | GND | | 64 | 63 | GPY5_2 | XSRAMDATA_2 | |
| | MAINCAM_MIPI_CLK_N | | 66 | 65 | GPY5_3 | XSRAMDATA_3 | |
| | MAINCAM_MIPI_CLK_P | | 68 | 67 | GPY5_4 | XSRAMDATA_4 | |
| | GND | | 70 | 69 | GPY5_5 | XSRAMDATA_5 | |
| | MAINCAM_MIPI_D1_N | | 72 | 71 | GPY5_6 | XSRAMDATA_6 | |
| | MAINCAM_MIPI_D1_P | | 74 | 73 | GPY5_7 | XSRAMDATA_7 | |
| | GND | | 76 | 75 | GND | | |
| | MAINCAM_MIPI_D0_N | | 78 | 77 | GPY6_0 | XSRAMDATA_8 | |
| | MAINCAM_MIPI_D0_P | | 80 | 79 | GPY6_1 | XSRAMDATA_9 | |
| | GND | | 82 | 81 | GPY6_2 | XSRAMDATA_10 | |
| | DISP_MIPI_D3_N | | 84 | 83 | GPY6_3 | XSRAMDATA_11 | |
| MIPI DSI | DISP_MIPI_D3_P | | 86 | 85 | GPY6_4 | XSRAMDATA_12 | |
| CH1 | GND | | 88 | 87 | GPY6_5 | XSRAMDATA_13 | |
| | DISP_MIPI_D2_N | | 90 | 89 | GPY6_6 | XSRAMDATA_14 | |
| | DISP_MIPI_D2_P | | 92 | 91 | GPY6_7 | XSRAMDATA_15 | |
| | GND | | 94 | 93 | GPG2_0 | XCI1HSYNC | GPIO |
| | DISP_MIPI_CLK_N | | 96 | 95 | GPG1_7 | XCI1VSYNC | |
| | DISP_MIPI_CLK_P | | 98 | 97 | GPG2_1 | XCI1MCLK | |
| | GND | | 100 | 99 | GND | | |

| KCN3(1~50) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 2 | 1 | GND | | |
| | DISP_MIPI_D1_N | | 4 | 3 | GND | | |
| MIPI DSI | DISP_MIPI_D1_P | | 6 | 5 | GPG0_0 | XCI1PCLK | |
| Ch1 | GND | | 8 | 7 | GPG1_6 | XCI1RGB_13 | |
| | DISP_MIPI_D0_N | | 10 | 9 | GPG1_4 | XCI1RGB_11 | |
| | DISP_MIPI_D0_P | | 12 | 11 | GPG1_3 | XCI1RGB_10 | |
| | GND | | 14 | 13 | GPG1_2 | XCI1RGB_9 | |
| | VTCAM_D2_N | | 16 | 15 | GPG1_1 | XCI1RGB_8 | |
| | VTCAM_D2_P | | 18 | 17 | GPG1_0 | XCI1RGB_7 | |
| MIPI CSI | GND | | 20 | 19 | GPG0_7 | XCI1RGB_6 | |
| Ch1 | VTCAM_D3_N | | 22 | 21 | GPG0_6 | XCI1RGB_5 | |
| | VTCAM_D3_P | | 24 | 23 | GPG0_5 | XCI1RGB_4 | |
| | GND | | 26 | 25 | GPG0_4 | XCI1RGB_3 | |
| | VTCAM_CLK_N | | 28 | 27 | GPG0_3 | XCI1RGB_2 | |
| | VTCAM_CLK_P | | 30 | 29 | GPG0_2 | XCI1RGB_1 | GPIO |
| | GND | | 32 | 31 | GPG0_1 | XCI1RGB_0 | |
| | VTCAM_D0_N | | 34 | 33 | GPF1_7 | XISPSPI1MOSI | |
| | VTCAM_D0_P | | 36 | 35 | GPF1_6 | XISPSPI1MISO | |
| | GND | | 38 | 37 | GPF1_5 | XISPSPI1CSN | ISP GPIO |
| | VTCAM_D1_N | | 40 | 39 | GPF1_4 | XISPSPI1CLK | |
| | VTCAM_D1_P | | 42 | 41 | GPF1_3 | XISPSPI0MOSI | |
| | GND | | 44 | 43 | GPF1_2 | XISPSPI0MISO | |
| HDMI | HD_TXC | | 46 | 45 | GPF1_1 | XISPSPI0CSN | |
| | HD_TXC+ | | 48 | 47 | GPF1_0 | XISPSPI0CLK | |
| | GND | | 50 | 49 | | XADC1AIN_0 | ADC |

| KCN3(51~100) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | HD_TX0- | | 52 | 51 | | XADC1AIN_1 | |
| HDMI | HD_TX0+ | | 54 | 53 | | XADC1AIN_2 | ADC |
| | GND | | 56 | 55 | | XADC1AIN_3 | |
| | HD_TX1- | | 58 | 57 | GND | | |
| | HD_TX1+ | | 60 | 59 | GPF0_4 | XISPI2C2SDA | |
| | GND | | 62 | 61 | GPF0_5 | XISPI2C2SCL | ISP ,GPIO |
| | HD_TX2- | | 64 | 63 | GPF0_2 | XISPI2C1SDA | |
| | HD_TX2+ | | 66 | 65 | GPF0_3 | XISPI2C1SCL | |
| | GND | | 68 | 67 | GPF0_0 | XISPI2C0SDA | |
| | GND | | 70 | 69 | GPF0_1 | XISPI2C0SCL | |
| | XDPAUXN | | 72 | 71 | GPE1_1 | XISPGP9 | |
| eDP | XDPAUXP | | 74 | 73 | GPE1_0 | XISPGP8 | |
| | GND | | 76 | 75 | GPE0_7 | XISPGP7 | |
| | XDPTX3N | | 78 | 77 | GPE0_6 | XISPGP6 | |
| | XDPTX3P | | 80 | 79 | GPE0_5 | XISPGP5 | |
| | GND | | 82 | 81 | GPE0_4 | ISPGP4 | |
| | XDPTX2N | | 84 | 83 | GPE0_3 | XISPGP3 | |
| | XDPTX2P | | 86 | 85 | GPE0_2 | XISPGP2 | |
| | GND | | 88 | 87 | GPE0_1 | XISPGP1 | |
| | XDPTX1N | | 90 | 89 | GPE0_0 | XISPGP0 | |
| | XDPTX1P | | 92 | 91 | GPJ4_0 | XV1VSYNC_LDI | |
| | GND | | 94 | 93 | GPJ4_1 | XV1FRM | |
| | XDPTX0N | | 96 | 95 | GPJ4_2 | XGPIO16 | |
| | XDPTX0P | | 98 | 97 | GPJ4_3 | XGPIO17 | |
| | GND | | 100 | 99 | GND | | |

| KCN4(1~50) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 2 | 1 | GND | | |
| | XI2C9SCL_HS | GPB3_7 | 4 | 3 | GND | | |
| I2C | XI2C9SDA_HS | GPB3_6 | 6 | 5 | | XUSB3RX0P_1 | |
| | I2C10SCL_HS | GPB4_1 | 8 | 7 | | XUSB3RX0M_1 | USB 3.0 |
| | XI2C10SDA_HS | GPB4_0 | 10 | 9 | GND | | Ch1 |
| | XURTSN_2 | GPA1_3 | 12 | 11 | | XUSB3TX0M_1 | |
| UART | XUCTSN_2 | GPA1_2 | 14 | 13 | | XUSB3TX0P_1 | |
| | XURXD_3 | /GPA1_4 | 16 | 15 | GND | | |
| | XUTXD_3 | GPA1_5 | 18 | 17 | | XUSB3ID0_1 | |
| | XPWMTOUT_0 | GPB2_0 | 20 | 19 | GND | | |
| PWM | XPWMTOUT_1 | GPB2_1 | 22 | 21 | | XUSB3DP0_1 | |
| | XPWMTOUT_2 | GPB2_2 | 24 | 23 | | XUSB3DM0_1 | |
| | XPWMTOUT_3 | GPB2_3 | 26 | 25 | GND | | |
| | GND | | 28 | 27 | | XUSB3VBUS0_1 | |
| | XI2S2CDCLK | GPB1_1 | 30 | 29 | GND | | |
| | XI2S2LRCK | GPB1_2 | 32 | 31 | | XUSB3RX0M_0 | |
| I2S 2 | XI2S2SCLK | GPB1_0 | 34 | 33 | | XUSB3RX0P_0 | |
| | XI2S2SDI | GPB1_3 | 36 | 35 | GND | | |
| | XI2S2SDO | GPB1_4 | 38 | 37 | | XUSB3TX0M_0 | USB 3.0 |
| | XSPICLK_0 | GPA2_0 | 40 | 39 | | XUSB3TX0P_0 | Ch0 |
| SPI 1 | XSPICSN_0 | GPA2_1 | 42 | 41 | GND | | |
| | XSPIMISO_0 | GPA2_2 | 44 | 43 | | XUSB3ID0_0 | |
| | XSPIMOSI_0 | GPA2_3 | 46 | 45 | | XUSB3DP0_0 | |
| | GND | | 48 | 47 | | XUSB3DM0_0 | |
| I2S 1 | XI2S1CDCLK | GPB0_1 | 50 | 49 | GND | | |

| KCN4(51~100) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | XI2S1LRCK | GPB0_2 | 52 | 51 | | XUSB3VBUS0_0 | |
| I2S 0 | XI2S1SCLK | GPB0_0 | 54 | 53 | GND | | |
| | XI2S1SDI | GPB0_3 | 56 | 55 | | XHSICDATA1 | HSIC1 |
| | XI2S1SDO | GPB0_4 | 58 | 57 | | XHSICSTROBE1 | |
| | GND | | 60 | 59 | GND | | |
| | XSPICLK_1 | GPA2_4 | 62 | 61 | GPZ_1 | XAUDI2S0CDCLK | |
| SPI 1 | XSPICSN_1 | GPA2_5 | 64 | 63 | GPZ_2 | XAUDI2S0LRCK | |
| | XSPIMISO_1 | GPA2_6 | 66 | 65 | GPZ_0 | XAUDI2S0SCLK | I2S |
| | XSPIMOSI_1 | GPA2_7 | 68 | 67 | GPZ_3 | XAUDI2S0SDI | |
| | XGPIO0 | GPH0_0 | 70 | 69 | GPZ_4 | XAUDI2S0SDO_0 | |
| | XGPIO1 | GPH0_1 | 72 | 71 | GPZ_5 | XAUDI2S0SDO_1 | |
| | XGPIO2 | GPH0_2 | 74 | 73 | GPZ_6 | XAUDI2S0SDO_2 | |
| | XGPIO3 | GPH0_3 | 76 | 75 | GND | | |
| | XGPIO4 | GPH0_4 | 78 | 77 | | XADC0AIN_0 | |
| GPIO | XGPIO5 | GPH0_5 | 80 | 79 | | XADC0AIN_1 | |
| | XGPIO6 | GPH0_6 | 82 | 81 | | XADC0AIN_2 | |
| | XGPIO7 | GPH0_7 | 84 | 83 | | XADC0AIN_3 | ADC 0 |
| | XGPIO8 | GPY7_0 | 86 | 85 | | XADC0AIN_4 | |
| | XGPIO9 | GPY7_1 | 88 | 87 | | XADC0AIN_5 | |
| | XGPIO10 | GPY7_2 | 90 | 89 | | XADC0AIN_6 | |
| | XGPIO11 | GPY7_3 | 92 | 91 | | XADC0AIN_7 | |
| | XGPIO12 | GPY7_4 | 94 | 93 | | XADC0AIN_8 | |
| | XGPIO13 | GPY7_5 | 96 | 95 | | XADC0AIN_9 | |
| | XGPIO14 | GPY7_6 | 98 | 97 | GPY7_7 | XGPIO15 | |
| | GND | | 100 | 99 | GND | | |

| KCN5(1~50) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| | GND | | 2 | 1 | GND | | |
| | | | 4 | 3 | GPX0_0 | XEINT_0 | |
| | XOM2 | | 6 | 5 | GPX0_1 | XEINT_1 | |
| SYS | XOM3 | | 8 | 7 | GPX0_2 | XEINT_2 | |
| | XOM4 | | 10 | 9 | GPX0_3 | XEINT_3 | |
| | XOM5 | | 12 | 11 | GPX0_4 | XEINT_4 | |
| | PMIC_MRSTB | | 14 | 13 | GPX0_5 | XEINT_5 | |
| SYS | XOMCCI | | 16 | 15 | GPX0_6 | XEINT_6 | |
| | XCLKOUT | | 18 | 17 | GPX0_7 | XEINT_7 | |
| | XnRESET | | 20 | 19 | GPX1_0 | XEINT_8 | |
| | XnWRESET | | 22 | 21 | GPX1_1 | XEINT_9 | |
| | PVDD_LDO8 | | 24 | 23 | GPX1_2 | XEINT_10 | |
| RTC PWR | VDD_RTC_PM | | 26 | 25 | GND | | |
| | PVDD_LDO2 | | 28 | 27 | GPX1_4 | XEINT_12 | |
| | PVDD_LDO2 | | 30 | 29 | GPX1_5 | XEINT_13 | XEINT |
| | PVDD_LDO32 | | 32 | 31 | GPX1_6 | XEINT_14 | |
| | PVDD_LDO32 | | 34 | 33 | GPX1_7 | XEINT_15 | |
| | PVDD_LDO29 | | 36 | 35 | GPX2_0 | XEINT_16 | |
| | PVDD_LDO29 | | 38 | 37 | GPX2_1 | XEINT_17 | |
| | PVDD_LDO31 | | 40 | 39 | GPX2_2 | XEINT_18 | |
| | PVDD_LDO33 | | 42 | 41 | GPX2_3 | GPX2_3 | |
| PMIC LDO | PVDD_LDO18 | | 44 | 43 | GPX2_4 | XEINT_20 | |
| | PVDD_LDO18 | | 46 | 45 | GPX2_5 | XEINT_21 | |
| | PVDD_LDO30 | | 48 | 47 | GPX2_6 | XEINT_22 | |
| | PVDD_LDO30 | | 50 | 49 | GPX2_7 | XEINT_23 | |

| KCN5(51~100) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 기능 | 핀 이름 | GPIO | 핀 번호 | | GPIO | 핀 이름 | 기능 |
| PMIC LDO | PVDD_LDO20 | | 52 | 51 | GPX3_0 | XEINT_24 | T |
| | PVDD_LDO37 | | 54 | 53 | GPX3_1 | XEINT_25 | |
| | PVDD_LDO34 | | 56 | 55 | XEINT_26 | GPX3_2 | |
| | PVDD_LDO34 | | 58 | 57 | XEINT_27 | GPX3_3 | |
| | PVDD_LDO28 | | 60 | 59 | XEINT_28 | GPX3_4 | |
| | PVDD_LDO28 | | 62 | 61 | GPX3_5 | XEINT_29 | |
| | PVDD_LDO15 | | 64 | 63 | GPX3_6 | XEINT_30 | XEINT |
| | PVDD_LDO25 | | 66 | 65 | GPX3_7 | XEINT_31 | |
| | PVDD_LDO21 | | 68 | 67 | GND | | |
| | PVDD_LDO26 | | 70 | 69 | | CP32K_PM | |
| | PVDD_LDO17 | | 72 | 71 | | BT32K_PM | |
| | PVDD_LDO14 | | 74 | 73 | | XPWRRGTON | |
| | PVDD_LDO36 | | 76 | 75 | | PMIC_JIGONB | |
| | PVDD_LDO35 | | 78 | 77 | | XPSHOLD | |
| | PVDD_LDO35 | | 80 | 79 | | POWER_KEY | |
| | PVDD_LDO19 | | 82 | 81 | | PMIC_ACOKB | |
| | PVDD_LDO19 | | 84 | 83 | | XjTCK | |
| | PVDD_LDO16 | | 86 | 85 | | XjTDI | JTAG |
| | PVDD_LDO24 | | 88 | 87 | | XjTDO | |
| | PVDD_LDO22 | | 90 | 89 | | XjTMS | |
| | PVDD_LDO22 | | 92 | 91 | | XjTRSTn | |
| | PVDD_LDO38 | | 94 | 93 | | XDBGSEL | |
| MAIN POWER | VINMAIN | | 96 | 95 | | VINMAIN | MAIN POWER |
| | VINMAIN | | 98 | 97 | | VINMAIN | |
| | VINMAIN | | 100 | 99 | | VINMAIN | |