

# SERIAL PRESENCE DETECT

## M392B5273DH0-YF809/YH909/YK009/YMA09

Organization : 512M x 72  
 Composition : 256M x 8 \* 18ea  
 Used component part # : K4B2G0846D-HYF8/HYH9/HYK0/HYMA  
 # of rows in module : 2 Row  
 # of banks in component : 8 Banks  
 Feature : 18.75mm height & double sided component  
 Refresh : 8K/64ms  
 Bin Sort : F8(DDR3 1066@CL=7), H9(DDR3 1333@CL=9), K0(DDR3 1600@CL=11), MA(DDR3 1866@CL=13)  
 RCD Vendor and Revision : Inphi UV GS02

| Byte # | Function Described  | Function Supported  |            |                    |                        | Hex Value |       |       |       | Note |
|--------|---|---|------------|--------------------|------------------------|-----------|-------|-------|-------|------|
|        |   | YF809   | YH909      | YK009              | YMA09                  | YF809     | YH909 | YK009 | YMA09 |      |
| 0      | Number of Serial PD Bytes Written / SPD Device Size / CRC Coverage        | CRC coverage 0~116Byte, SPD Byte Total :256Byte, SPD Byte Use : 176Byte |            |                    |                        | 92h       |       |       |       |      |
| 1      | SPD Revision  | Version 1.1   |            |                    |                        | 11h       |       |       |       |      |
| 2      | Key Byte / DRAM Device Type   | DDR3 SDRAM  |            |                    |                        | 0Bh       |       |       |       |      |
| 3      | Key Byte / Module Type  | Registered DIMM   |            |                    |                        | 01h       |       |       |       |      |
| 4      | SDRAM Density and Banks   | 2Gb 8banks  |            |                    |                        | 03h       |       |       |       |      |
| 5      | SDRAM Addressing  | Row : 15, Column : 10   |            |                    |                        | 19h       |       |       |       |      |
| 6      | Module Nominal Voltage, VDD   | 1.35V and 1.5V  |            |                    |                        | 02h       |       |       |       |      |
| 7      | Module Organization   | 2Rank / x8  |            |                    |                        | 09h       |       |       |       |      |
| 8      | Module Memory Bus Width   | ECC, 64bit  |            |                    |                        | 0Bh       |       |       |       |      |
| 9      | Fine Timebase Dividend and Divisor  | 1ps   |            |                    |                        | 11h       |       |       |       |      |
| 10     | Medium Timebase Dividend  | 1/8 (0.125ns)   |            |                    |                        | 01h       |       |       |       |      |
| 11     | Medium Timebase Divisor   | 1/8 (0.125ns)   |            |                    |                        | 08h       |       |       |       |      |
| 12     | SDRAM Minimum Cycle Time (tCKmin)   | 1.875ns   | 1.5ns      | 1.25ns             | 1.071ns                | 0Fh       | 0Ch   | 0Ah   | 09h   |      |
| 13     | Reserved  | Reserved  |            |                    |                        | 00h       |       |       |       |      |
| 14     | CAS Latencies Supported, Least Significant Byte                           | 6, 7, 8   | 6, 7, 8, 9 | 6, 7, 8, 9, 10, 11 | 6, 7, 8, 9, 10, 11, 13 | 1Ch       | 3Ch   | FCh   | FCh   |      |
| 15     | CAS Latencies Supported, Most Significant Byte                            | 6, 7, 8   | 6, 7, 8, 9 | 6, 7, 8, 9, 10, 11 | 6, 7, 8, 9, 10, 11, 13 | 00h       | 00h   | 00h   | 02h   |      |
| 16     | Minimum CAS Latency Time(tAAmin)  | 13.125ns  |            |                    |                        | 69h       |       |       |       |      |
| 17     | Minimum Write Recovery Time (tWRmin)                                      | 15ns  |            |                    |                        | 78h       |       |       |       |      |
| 18     | Minimum RAS# to CAS# Delay Time (tRCDmin)                                 | 13.125ns  |            |                    |                        | 69h       |       |       |       |      |
| 19     | Minimum Row Active to Row Active Delay Time (tRRDmin)                     | 7.5ns   | 6ns        | 6ns                | 5ns                    | 3Ch       | 30h   | 30h   | 28h   |      |
| 20     | Minimum Row Precharge Time (tRPmin)                                       | 13.125ns  |            |                    |                        | 69h       |       |       |       |      |
| 21     | Upper Nibbles for tRAS and tRC  | -   |            |                    |                        | 11h       |       |       |       |      |
| 22     | Minimum Active to Precharge Time (tRASmin), Least Significant Byte        | 37.5ns  | 36ns       | 35ns               | 34ns                   | 2Ch       | 20h   | 18h   | 10h   |      |
| 23     | Minimum Active to Active/Refresh Time (tRCmin), Least Significant Byte    | 50.625ns  | 49.125ns   | 48.125ns           | 47.125ns               | 95h       | 89h   | 81h   | 79h   |      |
| 24     | Minimum Refresh Recovery Time (tRFCmin), Least Significant Byte           | 160ns   |            |                    |                        | 00h       |       |       |       |      |
| 25     | Minimum Refresh Recovery Time (tRFCmin), Most Significant Byte            | 160ns   |            |                    |                        | 05h       |       |       |       |      |
| 26     | Minimum Internal Write to Read Command Delay Time (tWTRmin)               | 7.5ns   |            |                    |                        | 3Ch       |       |       |       |      |
| 27     | Minimum Internal Read to Precharge Command Delay Time (tRTPmin)           | 7.5ns   |            |                    |                        | 3Ch       |       |       |       |      |
| 28     | Upper Nibble for tFAW   | 37.5ns  | 30ns       | 30ns               | 27ns                   | 01h       | 00h   | 00h   | 00h   |      |
| 29     | Minimum Four Activate Window Delay Time (tFAWmin), Least Significant Byte | 37.5ns  | 30ns       | 30ns               | 27ns                   | 2Ch       | F0h   | F0h   | D8h   |      |
| 30     | SDRAM Output Drivers supported  | DLL off Mode, RZQ/6, RZQ/7  |            |                    |                        | 83h       |       |       |       |      |
| 31     | SDRAM Thermal and Refresh Options   | No ODTs, No ASR   |            |                    |                        | 01h       |       |       |       |      |
| 32     | Module Thermal Sensor   | with TS   |            |                    |                        | 80h       |       |       |       |      |
| 33     | SDRAM Device Type   | Standard Monolithic DRAM Device   |            |                    |                        | 00h       |       |       |       |      |
| 34     | Fine Offset for SDRAM Minimum Cycle Time(tCKmin)                          | 1.875ns   | 1.5ns      | 1.25ns             | 1.071ns                | 00h       | 00h   | 00h   | CAh   |      |
| 35     | Fine Offset for Minimum CAS Latency Time(tAAmin)                          | 13.125ns  |            |                    |                        | 00h       |       |       |       |      |

# SERIAL PRESENCE DETECT

| Byte #  | Function Described  | Function Supported              |          |          |          | Hex Value |       |       |       | Note |
|---------|---|---------------------------------|----------|----------|----------|-----------|-------|-------|-------|------|
|         |   | YF809                           | YH909    | YK009    | YMA09    | YF809     | YH909 | YK009 | YMA09 |      |
| 36      | Fine Offset for Minimum RAS# to CAS# Delay Time(tRCDmin)            | 13.125ns                        |          |          |          | 00h       |       |       |       |      |
| 37      | Fine Offset for Minimum Row Precharge Delay Time(tRPmin)            | 13.125ns                        |          |          |          | 00h       |       |       |       |      |
| 38      | Fine Offset for Minimum Active to Active/Refresh Delay Time(tRCmin) | 50.625ns                        | 49.125ns | 48.125ns | 47.125ns | 00h       |       |       |       |      |
| 39-59   | Reserved, General Section   | Reserved                        |          |          |          | 00h       |       |       |       |      |
| 60      | Module Nominal Height   | 18.75mm                         |          |          |          | 04h       |       |       |       |      |
| 61      | Module Maximum Thickness  | Planar Double sides             |          |          |          | 11h       |       |       |       |      |
| 62      | Reference Raw Card Used   | R/C L, 1.0                      |          |          |          | 2Ah       |       |       |       |      |
| 63      | DIMM Module Attributes  | 1 Row of DRAM / 1 Register used |          |          |          | 05h       |       |       |       |      |
| 64      | Heat Spreader Solution  | without HS                      |          |          |          | 00h       |       |       |       |      |
| 65      | Register vendor ID code(LSB)  | Inphi                           |          |          |          | 04h       |       |       |       |      |
| 66      | Register vendor ID code(MSB)  | Inphi                           |          |          |          | B3h       |       |       |       |      |
| 67      | Register Revision Number  | Inphi UVGS02                    |          |          |          | 21h       |       |       |       |      |
| 68      | Register Type   | SSTE32882                       |          |          |          | 00h       |       |       |       |      |
| 69      | Register Control Word Functions(RC0/RC1)                            | Default                         |          |          |          | 00h       |       |       |       |      |
| 70      | Register Control Word Functions(RC2/RC3)                            | R/C L                           |          |          |          | 50h       |       |       |       |      |
| 71      | Register Control Word Functions(RC4/RC5)                            | R/C L                           |          |          |          | 00h       |       |       |       |      |
| 72      | Register Control Word Functions(RC6/RC7)                            | Default                         |          |          |          | 00h       |       |       |       |      |
| 73      | Register Control Word Functions(RC8/RC9)                            | Default                         |          |          |          | 00h       |       |       |       |      |
| 74      | Register Control Word Function(RC10, RC11)                          | Default                         |          |          |          | 00h       |       |       |       |      |
| 75      | Register Control Word Function(RC12, RC13)                          | Default                         |          |          |          | 00h       |       |       |       |      |
| 76      | Register Control Word Function(RC14, RC15)                          | Default                         |          |          |          | 00h       |       |       |       |      |
| 77-116  | Reserved  | -                               |          |          |          | 00h       |       |       |       |      |
| 117     | Module Manufacturer ID Code, Least Significant Byte                 | Samsung                         |          |          |          | 80h       |       |       |       |      |
| 118     | Module Manufacturer ID Code, Most Significant Byte                  | Samsung                         |          |          |          | CEh       |       |       |       |      |
| 119     | Module ID: Module Manufacturing Location                            | Onyang Korea                    |          |          |          | 01h       |       |       |       |      |
| 120     | Module ID: Module Manufacturing Date                                | -                               |          |          |          | 00h       |       |       |       |      |
| 121     | Module ID: Module Manufacturing Date                                | -                               |          |          |          | 00h       |       |       |       |      |
| 122-125 | Module ID : Module Serial Number                                    | -                               |          |          |          | 00h       |       |       |       |      |
| 126     | Cyclical Redundancy Code  | -                               | -        |          |          | CFh       | 8Dh   | B9h   | EAh   |      |
| 127     | Cyclical Redundancy Code  | -                               | -        |          |          | 37h       | 9Eh   | 41h   | 49h   |      |
| 128     | Module Part Number  | M                               |          |          |          | 4Dh       |       |       |       |      |
| 129     | Module Part Number  | 3                               |          |          |          | 33h       |       |       |       |      |
| 130     | Module Part Number  | 9                               |          |          |          | 39h       |       |       |       |      |
| 131     | Module Part Number  | 2                               |          |          |          | 32h       |       |       |       |      |
| 132     | Module Part Number  | B                               |          |          |          | 42h       |       |       |       |      |
| 133     | Module Part Number  | 5                               |          |          |          | 35h       |       |       |       |      |
| 134     | Module Part Number  | 2                               |          |          |          | 32h       |       |       |       |      |
| 135     | Module Part Number  | 7                               |          |          |          | 37h       |       |       |       |      |
| 136     | Module Part Number  | 3                               |          |          |          | 33h       |       |       |       |      |
| 137     | Module Part Number  | D-die                           |          |          |          | 44h       |       |       |       |      |
| 138     | Module Part Number  | H                               |          |          |          | 48h       |       |       |       |      |
| 139     | Module Part Number  | 0                               |          |          |          | 30h       |       |       |       |      |
| 140     | Module Part Number  | -                               |          |          |          | 2Dh       |       |       |       |      |
| 141     | Module Part Number  | Y                               |          |          |          | 59h       |       |       |       |      |
| 142     | Module Part Number  | F                               | H        | K        | M        | 46h       | 48h   | 4Bh   | 4Dh   |      |
| 143     | Module Part Number  | 8                               | 9        | 0        | A        | 38h       | 39h   | 30h   | 41h   |      |

## SERIAL PRESENCE DETECT

| Byte #  | Function Described                 | Function Supported |       |       |       | Hex Value |       |       |       | Note |
|---------|------------------------------------|--------------------|-------|-------|-------|-----------|-------|-------|-------|------|
|         |                                    | YF809              | YH909 | YK009 | YMA09 | YF809     | YH909 | YK009 | YMA09 |      |
| 144     | Module Part Number                 | Blank              |       |       |       | 20h       |       |       |       |      |
| 145     | Module Part Number                 | Blank              |       |       |       | 20h       |       |       |       |      |
| 146-147 | Module Revision Code               | -                  |       |       |       | 00h       |       |       |       |      |
| 148     | SDRAM Manufacturer's JEDEC ID Code | Samsung            |       |       |       | 80h       |       |       |       |      |
| 149     | SDRAM Manufacturer's JEDEC ID Code | Samsung            |       |       |       | CEh       |       |       |       |      |
| 150-175 | Manufacturer's Specific Data       | -                  |       |       |       | 00h       |       |       |       |      |
| 176-255 | Open for customer use              | -                  |       |       |       | 00h       |       |       |       |      |