

IBD193

Quick Guide V1.0

Mini-PCIe Card for Expansion

IBD193 is designed with low power consumption but provides high speed performance. Data stored in IBD193 will be protected automatically on power loss and the storage is highly reliable.

Features

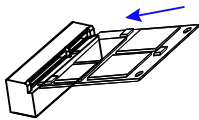
- PCIe to MRAM storage
- MR4A16BCYS35 or MR2A16ACYS35 MRAM
- Low power consumption and optimal performance

Packing List

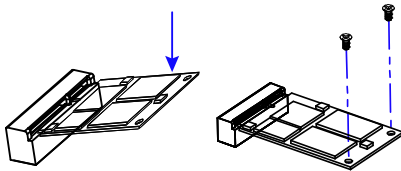
- Flat Head Screw x 2 (P/N: H0220351112200B10P)

Installation

1. Locate the mini-PCIe slot on your device or system, align the key of the mini-PCIe card to the interface, and insert the card slantwise.



2. Push the mini-PCIe card down, and fix it with the supplied two flat head screws.



Driver Installation

For 64-bit operating system

1. Copy "KMUI64_1K.SYS" file to <%WINDIR%\SYSTEM32\DRIVERS\
2. Execute the RegEdit. The following parameters must be written to your registry.

```
HKLM,"System\CurrentControlSet\Services\KMUI64_1K","ErrorControl",%REG_DWORD%,0x00000001
HKLM,"System\CurrentControlSet\Services\KMUI64_1K","Type",%REG_DWORD%,0x00000001
HKLM,"System\CurrentControlSet\Services\KMUI64_1K","Start",%REG_DWORD%,0x00000000
HKLM,"System\CurrentControlSet\Services\KMUI64_1K","DisplayName",%REG_SZ%,"KMUI64_1K"
```

3. Restart the system.

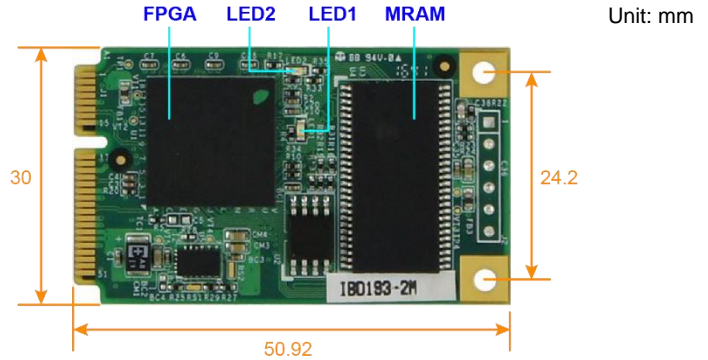
For 32-bit operating system

1. Copy "KMUI32_1K.SYS" file to <%WINDIR%\SYSTEM32\DRIVERS\
2. Execute the RegEdit. The following parameters must be written to your registry.

```
HKLM,"System\CurrentControlSet\Services\KMUI32_1K","ErrorControl",%REG_DWORD%,0x00000001
HKLM,"System\CurrentControlSet\Services\KMUI32_1K","Type",%REG_DWORD%,0x00000001
HKLM,"System\CurrentControlSet\Services\KMUI32_1K","Start",%REG_DWORD%,0x00000000
HKLM,"System\CurrentControlSet\Services\KMUI32_1K","DisplayName",%REG_SZ%,"KMUI32_1K"
```

3. Restart the system.

Note Do not register or install the 32-bit and 64-bit driver in the same operation system.



Specifications

Interface	Mini-PCIe
MRAM	Everspin MR4A16BCYS35 (2MB) or MR2A16ACYS35 (512KB)
FPGA	Xilinx XC6SLX25T
LED	<p>LED1 (Flashing/Off): When MRAM is being accessed, LED1 flashes; otherwise it is off.</p> <p>LED2 (On/Off): When FPGA is working, LED2 is lit; otherwise it is off.</p>
Dimensions	50.95 x 30 mm (3.35" x 1.77")
RoHS	Yes
Temperature	<p>Operating: 0 ~ 60 °C (-32 ~ 140 °F)</p> <p>Storage: -20 ~ 80 °C (-4 ~ 176 °F)</p>
Relative Humidity	5 ~ 90 %, no condensation



Status Returning from the Routine

KSTATUS_SUCCESS	The command is executed successfully.
KSTATUS_DRIVER_FAIL	Cannot install the device driver
KSTATUS_CARD_FAIL	Cannot initialize the controller
KSTATUS_MB_MISMATCH	The mainboard has been changed.
KSTATUS_PARAMETER_INCORRECT	The input parameter is incorrect and the invoked routine will refuses to execute the command.
KSTATUS_CFG_CHECKSUM_INCORRECT	The .CNF file checksum incorrect
KSTATUS_CFG_NOT_EXIST	The .CNF file is not exist
KSTATUS_CFG_HW_MISMATCH	The .CNF file is not matching the current hardware
KSTATUS_CFG_BAR_NA	The .CNF file corrupt
KSTATUS_CFG_OVERLAP	The requested resource is out of range
KSTATUS_SYS_MISMATCH	The motherboard is changed

Export Function on KMUIPCI.DLL & Notes

```
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_OpenInterface(const char * CnfFileName);
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_CloseInterface(void);
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_Read(enum OEM_PCIBAR BarIndex, ULONG Offset, VOID* lpPool, ULONG PoolLen);
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_Write(enum OEM_PCIBAR BarIndex, ULONG Offset, VOID* lpPool, ULONG PoolLen);
```

```
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_OpenInterface(const char * CnfFileName);
```

Input :

CnfFileName : The .CNF file name.

Output : Please refer to the description of the status

This function should be invoked before you try to access the card, otherwise. Other routines will not function.

```
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_CloseInterface(void);
```

Input : None

Output : Always return "KSTATUS_SUCCESS".

This function should be invoked before the program closes. It will release the device drive and memory. If the program closes without calling this routine, memory leak could occur. After calling this routine, other routines will not function. (except the "KMUIPCI_OpenInterface" routine)

```
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_Read(enum OEM_PCIBAR BarIndex, ULONG Offset, VOID* lpPool, ULONG PoolLen);
```

Input :

BarIndex : The functions for this request. It must be the member of OEM_PCIBAR and the detail information is in the .h file.

Offset : The offset from starting address to the target address

lpPool : A far pointer pointing to memory buffer; The operating results will be saved here.

PoolLen : The length of data to be read.

Output : Please refer to the description of the status

```
extern "C"    declspec(dllexport) int    stdcall    KMUIPCI_Write(enum OEM_PCIBAR BarIndex, ULONG Offset, VOID* lpPool, ULONG PoolLen);
```

Input :

BarIndex : The functions for this request. It must be the member of OEM_PCIBAR and the detail information is in the .h file.

Offset : The offset from starting address to the target address

lpPool : A far pointer pointing to memory buffer; The operating results will be saved here.

PoolLen : The length of data to be read.

Output : Please refer to the description of the status



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