
Data I/O Device Support FAQ

Glossary of Terms

DSR: Device Support Request

SR: Service Request

BBM: Bad Block Management

Master Device: Master device is a device programmed by customer's development tools. The Master device must be verified by the customer as a correctly configured sample. Data I/O recommends that the person who validates the master device content have software and hardware capabilities to avoid any memory write operations to the Master device during the validation process. Please note that in some environments, boot operations to the device can change image content. If the image content is changed during the validation of the image of a Master Device, development of the BBMS can have a higher risk of failure.

Documents

Documents should be sent to the following e-mail address with the DSR##### number in subject.

Specs&SamplesDepartment@DataIO.com

If file(s) are too large to e-mail, they can be uploaded to Data I/O via either way below:

<https://www.dataio.com/upload/> (Preferred, browse to this URL and fill the employee field as specs&SamplesDepartment@DataIO.com)

<http://ftp.dataio.com/FileUpload/Default.asp?EmailTo=Specs&SamplesDepartment@DataIO.com>

Q1. What knowledge base is needed to create a correct Task on DATA I/O programming system?

To program devices correctly with Data I/O's programming system, capable **engineer(s)** with below knowledge is expected to create/modify Task(s):

- Trained by Data I/O and knows how to work with Data I/O's programming system including hardware and software
- Read the footnotes of the target device and other needed materials (below linked address, etc.)
 - <http://ftp.dataio.com/FCNotes/Footnote/>
 - <http://ftp.dataio.com/FCNotes/BBM/>
 - <http://www.dataio.com/TLHelp/FP/TasklinkforFlashPAK.htm>
- Device specification to be programmed
- End application's specific requirement in detail

Q2. Where can I submit DSR?

You can submit a separate Device Support Request for each device on one platform (FlashPAK III, PSV3000, PSV5000, PSV7000(FCIII), PSV7000(LumenX), etc.) at the following link:

<http://www.dataio.com/Support/DeviceSupport/NewDeviceSupportRequest.aspx>

Please note to provide the Data I/O programming system serial number.

Q3. What materials should I provide for a new DSR?

Data I/O needs the following items to support a new device:

- Device specification from the semiconductor manufacturer which should include the following:
 - Ordering information scheme from the device manufacturers specification (for example: device family, pin/package decoding)

- memory map
- mechanical package drawing
- device/package pin mapping
- command table, waveforms
- AC & DC programming parameters, etc.
- samples (>=8pcs or, >=20pcs in case OTP/HIC to be supported)
 - >=20 pcs of taped samples (100pcs for QFP) for RoadRunner support or we might not be able to perform the mechanical test.
 - >=40 pcs of taped samples for PSV2800 support
- Data I/O programming system Serial Number

Besides the above items, Data I/O may require some extra information and samples for some specific devices.

- **NAND Device:**
 - ✚ Known working existing Bad Block Management (BBM)
 - ✓ BBM name
 - ✚ New BBM development or not sure
 - ✓ Materials listed in the following document.

http://ftp.dataio.com/FCNotes/BBM/Materials_Required_for_BBM_Development.pdf
- **MCU (Microcontroller), Logic Device, etc. (especially if a new family)**
 - ✚ Master device and the data file
 - ✚ Technical contact window
 - ✚ Specific information if anything special, e.g. it's a customized device

Q4. Where should I ship samples for my DSR?

Data I/O will notify you via email where the support for your device will occur. **It's suggested to ship them to the address listed in your specific DSR to avoid transmitting latency** or, you can also ship to our office corresponding to your area. Our device support office addresses are:

<p>To: Data I/O Corporation Samples Department Attn: DSR##### 6645 185th Ave NE, Suite 100 Redmond, WA 98052</p>	<p>Data I/O Electronics (China) Samples Department Attn: DSR##### 6F, Building #3 188 PingFu Road Shanghai, China PRC 200231</p>	<p>Data I/O GmbH Samples Department Attn: DSR##### Am Haag 10 D-82166 Graefelfing, Germany</p>
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Remember to specify the DSR number on the package as shown by: DSR#####

Please note that Data I/O considers all materials submitted for DSR as consumables; therefore, Data I/O is not able to return them upon completion of the DSR.

Q5. What is programming spec?

Programming spec is the document what includes all the required information to access & operate the internal non-volatile memory. It should cover the hardware connection, interface, communication protocol, command(s), operation parameter(s), memory address, waveform, etc. in detail for us to implement the hardware & software accordingly.



Programming spec could be included within a datasheet or a separate document or, the combination of several documents.

Q6. What file format(s) can be supported?

Please refer to TaskLink -> Help -> Documentation -> File Formats Reference Document for the already supported file formats and, it's default assumed the data file will be provided within the supported format. In case other file format(s) is needed to be supported during development, extra charge and lead time will be introduced.

For the file format(s) what not supported yet, detail document on the file format with also sample data file(s) would be required to get it supported.

Q7. How will I know when I can receive the algorithm and/or adapter?

Automated emails will be sent when a DSR is submitted and when the status is changed. The email is sent to the email address filled out on the DSR Form and will contain its web link as below.

http://semi.dataio.com/Semi/DSR_Show.asp?KEY=XXXXXXXXXXXXXXXXXX

You may use the link to trace the status of your DSR and communicate with us.

- Check commit date
- Check DSR current status
- Check Adapter name, etc.
- Check comments
- Add comments to communicate with us directly

Q8. Why is my DSR delayed?

Occasionally Data I/O will need to revise our commit. They reasons may include, vendor schedule change (example: socket arriving late), technical questions need further clarification from either customer or semi-vendor, device samples not working as expected, engineer encountered unexpected difficulty in debugging algorithm, response latency or other. Data I/O's engineer will explain in the comments and inform customer as early as possible.

To help maintain the schedule and avoid any impact on your production, please

- Provide required materials in time, esp. NAND, MCU and Logic devices
- Answer to the technical questions (if any) ASAP.
- Feedback ASAP.
- Track the DSR status and put a comment in DSR if anything special

Q9. How can I expedite my urgent DSR?

- Contact Data I/O's sales team or local distributor for help
- Inquire whether it's possible to pay priority fee to expedite lead time

Q10. How can I get help if there is an issue with my Data I/O system, e.g. programming failure?

Please contact your local channel or issue a SR within our MAX system to contact service team for help. Data I/O will need the materials listed below:

- Exact description (yield, scenario, etc.) of the issue and steps to duplicate it
- Eventlog.txt what includes the error message
- Data file and exported Task (depends on your platform)



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- FDRROOT (if possible)
 - Fresh new devices, failed devices and passed devices (if any); 4 pieces each typically
 - Contact information and best time to contact you
 - Open a new DSR if none is currently active

Q11. What can I do if the programmed devices don't pass functional test (e.g. boot up fail onboard)?

Data I/O does our best to make sure the data is programmed into the device according to the specification. If there is an issue, please check the following items to narrow the root cause:

- Check the data file
- Check the data file content if possible
- Check all settings in TaskLink
- Read the footnotes of this device and BBM user manual in case for NAND device
- Test several other devices and other PCBs, etc.

If this doesn't solve the failure, please issue a SR within MAX and provide materials listed below

- Exact description (yield, scenario, etc.) of the issue
- Eventlog.txt what includes the programming log
- Data file for programming and exported Task (depends on your platform)
- FDRROOT (if possible)
- Fresh new devices, failed devices and passed devices (if any); 4 pieces each typically
 - ◆ You can read the passed & failed samples on our programmer and send the read out data in advance
 - ◆ Use "BBM_ReadBack" for NAND device reading
http://ftp.dataio.com/FCNotes/BBM/BBM_ReadBack%20User%20Manual.pdf
- Contact information and available time window
- A new DSR (if no active one)

Q12. How can I retrieve the event log?

The event log is a txt file stored on the CF card of FlashCORE to record system event/behavior during system operating. It's named as **EVENTLOG.TXT** what is stored under...\FDRROOT\SYSTEM\

- On FlashPAKIII/RR, it could be gotten from the CF card directly, but note to double press the pause button (||) before unplugging the CF card
- On PS/PSV machine, you can retrieve the EVENTLOG.TXT file by using the tool CollectLog.

Q13. Why does the READ task not work?

There are different possibilities, e.g.:

- The device doesn't support read function (the 'Master Device' option is gray)
- Check footnote of the algorithm for any specific information
- The device is secured by password and it needs to be set properly
- The device had been locked out for read
- The TaskLink setting is not set properly. Try the steps listed below:
 - ✚ Make a new READ task, enable "Use Special Features from Data Source" if applicable
 - ✚ Load this task from TaskLink to CF card/machine
 - ✚ Reboot the machine and run the READ task

Q14. What should be noted while making a read Task?

- Check all the program checkbox(s) under “Sectors” tab
- Check the checkbox “Use Special Features from Data Source” if applicable
- Select the option “Verify” process if applicable
- Retrieve the data via TaskLink software, instead of directly check image.bin what could be on the CF card

Q15. How to make sure only selected sectors will be programmed?

- Uncheck the checkbox “Transfer data only for sectors to be programmed during Job loading operation” within TaskLink options
- Check the checkbox(s) only for the selected sectors within the task and uncheck the other(s)
- Read through the footnotes to see if anything to be noted

Q16. Why does Device ID error happen?

Typically it’s caused by the algorithm and the device doesn’t match. E.g. a different version of the device could have a different ID, even with the same part number. Please following

- Check the device mark and the device specification about the ID
- Confirm the device is properly inserted. Check to make sure the pin1 location is in the right direction in the socket
- Check the event log. Most of the time the expected and real ID will be reported there.

Q17. Why does TaskLink’s Checksum not match my expected value?

You may have a different way to calculate the checksum than TaskLink. The default way Data I/O calculates the checksum can be found in the document listed below:

http://ftp.dataio.com/FCNotes/Footnote/Data_IO_CS_Calculate_Method_AppNote.pdf

There can be special calculations for some dedicated devices, e.g. some Microchip devices. You can contact Data I/O for help.

Q18. When can I get the adapter name for a DSR?

The adapter will be selected before quotation. But in case a new adapter is needed, the name will be generated only after the PO received.

Q19. How can I contact a Data I/O device support engineer?

You may leave comments in your DSR. The corresponding engineers will be notified automatically. The Device Support Engineer can also reply in the comments section of the DSR and you will be notified via email.

Q20. Why is most of the BBM in grey and can’t be selected?

A BBM license is needed to unlock them. Please contact your local distributor, Channel or service team.

Q21. How do I work with the TaskLink File I/O tab setting?

The File I/O tab allows you to configure the special translation options for data file, please refer to the related part of below help file.

<http://www.dataio.com/TLHelp/FP/TasklinkforFlashPAK.htm>

Q22. What is the super header?

The eMMC standard 4.3+ feature set introduces new boot area and partitioning features. To use these features a specially formatted image file must be provided and a set of special features values must be correctly set for TLWin. Please refer to below document for further details.

The super header Organization:

<http://ftp.dataio.com/FCNotes/Footnote/Super%20Partition%20Organization.pdf>

1M super header example:

http://ftp.dataio.com/FCNotes/Footnote/1MB_Super_Partition_Header.zip

Super Header Editor Tool:

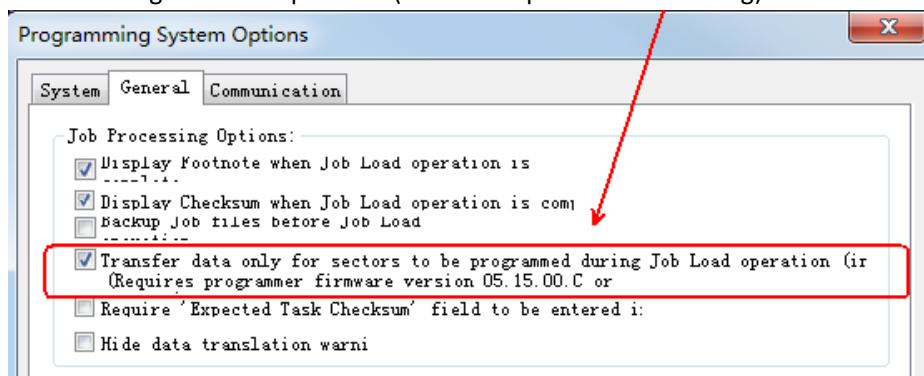
<http://ftp.dataio.com/FCNotes/Footnote/SuperHeaderEditor.zip>

Q23. What is the meaning of “Address to be programmed is over user size B!!!”?

An eMMC sector table has a reserved space for user area, boot partition and the Data I/O super header. The algorithm does the border check and will throw an error if you are trying to program the non-existed area, E.g. trying to program the address over the user.

Once this happen, please

- Check the data file. If the data file size is over the user area size (in case no super header)
- The ‘automatic RAM fill’ within ‘File I/O’ table should be kept as ‘Default’
- Check TaskLink Setting. If the compression (also called partial downloading) is checked



Q24. Are there any special notes needed for Renesas/NEC devices?

Typically Data I/O will write a note about these devices. Please check the footnotes listed under the device support on our website or in TaskLink. The footnote instructions should be followed to make sure the devices will be programmed correctly.

- Please use NEC's HEX Converter utility to generate Consolidated HEX file. The tool requires the device parameter file (pr5) and the customer file (HEX) as input.
(<http://www.renesas.com/products/tools/downloads.jsp> , search for HCU_GUI).
- Search for a pr5 file. Input your device name under window: Device-/Parameter-/Library file finder.
(<http://www2.renesas.eu/products/micro/download/>).

The algorithm could use the option settings from the data file and but not the options set on the special feature.



Date	History
2015/09/24	Initial release V1.0
2016/05/20	V3.0
2016/05/24	V4.0
2016/08/09	V4.1
2016/09/22	V4.2
2018/03/22	V4.3
2020/06/12	V4.4
2020/10/27	V4.5
2021/11/24	V4.6