

Microsemi Corporation

October 5, 2019

Customer Notification No: CN19024

Change Classification: Minor

Subject

Libero 12.2 Timing and P&R Changes

CN19024.1 PolarFire 1.0V Production Timing

Description of Change

Minor changes have been made to the timing parameters of sequential elements and select routing resources, including a tightening of the clock skew. These changes result in a minor impact on timing margins of existing designs.

Reason for Change

Our ongoing QA process highlighted the need to reclaim built-in timing margins to bring the timing model to the required quality levels.

Application Impact

Regression tests on the engineering suite of PolarFire designs impacted under this notification (MPF100T/200T/300T 1.0V) show the following:

- Designs created with previous Libero releases and opened without re-running P&R will show a clock performance variation by an average of –0.5% for the dash-1 speed grade and –4% for the –STD speed grade.
- Designs placed and routed in 12.2 will see on average no change in performance compared to the previous release.
- Hold violations vary by a maximum of ± 7 picoseconds compared to previous releases, with no change in the number of these violations.

Action Required

For –1 speed grade designs completed with Libero 12.1 or earlier on MPF100T/200T/300T 1.0V devices:

- The application impact remains within the built-in margin included between models and silicon performance. A design created with Libero SoC v12.1 that has been thoroughly proven on silicon (over PVT) will continue to work.

For –STD speed grade designs completed with Libero 12.1 or earlier on MPF100T/200T/300T 1.0V devices:

- Users are required to re-run STA using Libero 12.2 to check for timing violations. These, if present, can be addressed using general timing closure techniques, including re-running P&R.

Products Affected

See [Appendix A \(see page 3\)](#) for affected part numbers.

CN19024.2 SmartFusion2 and IGLOO2 Place and Route Model Update

Description of Change

Certain Row Global Buffer (RGB) configurations used in the case of routed clocks spanning large areas in SmartFusion2 and IGLOO2 designs have been disabled as of Libero SoC v12.2 onward.

Reason for Change

Prior to Libero SoC v12.2, SmartFusion2 and IGLOO2 designs using clocks routed towards the global network through an RCLKINT macro may require the cascading of multiple Row Global Buffers (RGBs) if the loads on that clock cover a large area in the device. In this case, the clock skew between distant FFs may be larger than the span of what is expected in a local area. In extreme cases (large device, short data path, or distant FFs), a skew-induced timing violation can exist that is undetected by the tools. Libero SoC v12.2 includes an update to the place and route algorithms to prevent such cascading.

Application Impact

The exposure to this issue is limited to designs using the larger devices, M2S150 and M2GL150. To achieve a consistent place and route algorithm that spans all devices the change has been implemented for all dies irrespective of size.

Action Required

If your design uses the affected RGB configurations, you will not be able to generate a programming file using this release.

Impacted designs completed with Libero SoC v12.1, 11.9SP4, or earlier releases will show the following error message when attempting to generate the bitstream of the design using release v12.2:

Error: The action you are requesting cannot be completed. You are using a configuration that has been disabled as of Libero SoC v12.2 onward. Please check the "RGB Area Coverage Limitation" sub-section under the "Known Issues and Limitations" section of Libero SoC v12.2 Release Notes for options to execute the requested action.

User action is required if:

- The impacted design is implemented on the M2S150 or M2GL150 device. In this case, users need to re-run P&R in incremental mode. Designs under this category that are already in production can contact <https://soc.microsemi.com/Portal/Default.aspx> to request a script that can assess the design exposure by analyzing routed clock skew details with respect to the available timing margin.
- The impacted design is not implemented on the M2S150 or the M2GL150 device, and a new bitstream is required using Libero SoC v12.2. In this case, users need to re-run P&R in incremental mode prior to generating the bitstream or regenerate the bitstream using a prior release. Designs in production are not affected.

Products Affected

See [Appendix B \(see page 4\)](#) for affected part numbers.

Contact Information

If you have further questions about this subject, contact Microsemi Technical Support department by using the support portal at <https://soc.microsemi.com/Portal/Default.aspx>

Regards,

Microsemi Corporation

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Appendix A

MPF100T-FCG484E	MPF100TL-FCG484E	MPF100T-1FCG484E
MPF100T-FCVG484E	MPF100TL-FCVG484E	MPF100T-1FCVG484E
MPF100T-FCSG325E	MPF100TL-FCSG325E	MPF100T-1FCSG325E
MPF200T-FCG484E	MPF200TL-FCG484E	MPF200T-1FCG484E
MPF200T-FCVG484E	MPF200TL-FCVG484E	MPF200T-1FCVG484E
MPF200T-FCG784E	MPF200TL-FCG784E	MPF200T-1FCG784E
MPF200T-FCSG325E	MPF200TL-FCSG325E	MPF200T-1FCSG325E
MPF200T-FCSG536E	MPF200TL-FCSG536E	MPF200T-1FCSG536E
MPF300T-FCG484E	MPF300TL-FCG484E	MPF300T-1FCG484E
MPF300T-FCVG484E	MPF300TL-FCVG484E	MPF300T-1FCVG484E
MPF300T-FCG784E	MPF300TL-FCG784E	MPF300T-1FCG784E
MPF300T-FCSG536E	MPF300TL-FCSG536E	MPF300T-1FCSG536E
MPF300T-FCG1152E	MPF300TL-FCG1152E	MPF300T-1FCG1152E
MPF100T-FCG484I	MPF100TL-FCG484I	MPF100T-1FCG484I
MPF100T-FCVG484I	MPF100TL-FCVG484I	MPF100T-1FCVG484I
MPF100T-FCSG325I	MPF100TL-FCSG325I	MPF100T-1FCSG325I
MPF200T-FCG484I	MPF200TL-FCG484I	MPF200T-1FCG484I
MPF200T-FCVG484I	MPF200TL-FCVG484I	MPF200T-1FCVG484I
MPF200T-FCG784I	MPF200TL-FCG784I	MPF200T-1FCG784I
MPF200T-FCSG325I	MPF200TL-FCSG325I	MPF200T-1FCSG325I
MPF200T-FCSG536I	MPF200TL-FCSG536I	MPF200T-1FCSG536I
MPF300T-FCG484I	MPF300TL-FCG484I	MPF300T-1FCG484I
MPF300T-FCVG484I	MPF300TL-FCVG484I	MPF300T-1FCVG484I
MPF300T-FCG784I	MPF300TL-FCG784I	MPF300T-1FCG784I
MPF300T-FCSG536I	MPF300TL-FCSG536I	MPF300T-1FCSG536I
MPF300T-FCG1152I	MPF300TL-FCG1152I	MPF300T-1FCG1152I
MPF100TLS-FCG484I	MPF100TS-FCG484I	MPF100TS-1FCG484I
MPF100TLS-FCVG484I	MPF100TS-FCVG484I	MPF100TS-1FCVG484I
MPF100TLS-FCSG325I	MPF100TS-FCSG325I	MPF100TS-1FCSG325I
MPF200TLS-FCG484I	MPF200TS-FCG484I	MPF200TS-1FCG484I
MPF200TLS-FCVG484I	MPF200TS-FCVG484I	MPF200TS-1FCVG484I
MPF200TLS-FCG784I	MPF200TS-FCG784I	MPF200TS-1FCG784I
MPF200TLS-FCSG325I	MPF200TS-FCSG325I	MPF200TS-1FCSG325I
MPF200TLS-FCSG536I	MPF200TS-FCSG536I	MPF200TS-1FCSG536I
MPF300TLS-FCG484I	MPF300TS-FCG484I	MPF300TS-1FCG484I
MPF300TLS-FCVG484I	MPF300TS-FCVG484I	MPF300TS-1FCVG484I
MPF300TLS-FCG784I	MPF300TS-FCG784I	MPF300TS-1FCG784I
MPF300TLS-FCSG536I	MPF300TS-FCSG536I	MPF300TS-1FCSG536I
MPF300TLS-FCG1152I	MPF300TS-FCG1152I	MPF300TS-1FCG1152I

Appendix B

M2S005-1FG484	M2S005S-VF400	M2S010T-1FGG484	M2S010T-VF400	M2S025T-1VF400	M2S025TS-VFG400I
M2S005-1FG484I	M2S005S-VF400I	M2S010T-1FGG484I	M2S010T-VF400I	M2S025T-1VF400I	M2S025T-VF256
M2S005-1FGG484	M2S005S-VFG256	M2S010T-1FGG484M	M2S010T-VFG256	M2S025T-1VFG256	M2S025T-VF256I
M2S005-1FGG484I	M2S005S-VFG256I	M2S010T-1VF256	M2S010T-VFG256I	M2S025T-1VFG256I	M2S025T-VF400
M2S005-1TQ144	M2S005S-VFG400	M2S010T-1VF256I	M2S010T-VFG400	M2S025T-1VFG400	M2S025T-VF400I
M2S005-1TQ144I	M2S005S-VFG400I	M2S010T-1VF400	M2S010T-VFG400I	M2S025T-1VFG400I	M2S025T-VFG256
M2S005-1TQG144	M2S005-TQ144	M2S010T-1VF400I	M2S010-VF256	M2S025T-FCS325	M2S025T-VFG256I
M2S005-1TQG144I	M2S005-TQ144I	M2S010T-1VFG256	M2S010-VF256I	M2S025T-FCS325I	M2S025T-VFG400
M2S005-1VF256	M2S005-TQG144	M2S010T-1VFG256I	M2S010-VF400	M2S025T-FCSG325	M2S025T-VFG400I
M2S005-1VF256I	M2S005-TQG144I	M2S010T-1VFG400	M2S010-VF400I	M2S025T-FCSG325I	M2S025-VF256
M2S005-1VF400	M2S005-VF256	M2S010T-1VFG400I	M2S010-VFG256	M2S025T-FG484	M2S025-VF256I
M2S005-1VF400I	M2S005-VF256I	M2S010T-FG484	M2S010-VFG256I	M2S025T-FG484I	M2S025-VF400
M2S005-1VFG256	M2S005-VF400	M2S010T-FG484I	M2S010-VFG400	M2S025T-FGG484	M2S025-VF400I
M2S005-1VFG256I	M2S005-VF400I	M2S010T-FGG484	M2S010-VFG400I	M2S025T-FGG484I	M2S025-VFG256
M2S005-1VFG400	M2S005-VFG256	M2S010T-FGG484I	M2S025-1FCS325	M2S025TS-1FCS325	M2S025-VFG256I
M2S005-1VFG400I	M2S005-VFG256I	M2S010-TQ144	M2S025-1FCS325I	M2S025TS-1FCS325I	M2S025-VFG400
M2S005-FG484	M2S005-VFG400	M2S010-TQ144I	M2S025-1FCSG325	M2S025TS-1FCSG325	M2S025-VFG400I
M2S005-FG484I	M2S005-VFG400I	M2S010-TQG144	M2S025-1FCSG325I	M2S025TS-1FCSG325I	M2S050-1FCS325
M2S005-FGG484	M2S010-1FG484	M2S010-TQG144I	M2S025-1FG484	M2S025TS-1FG484	M2S050-1FCS325I
M2S005-FGG484I	M2S010-1FG484I	M2S010TS-1FG484	M2S025-1FG484I	M2S025TS-1FG484I	M2S050-1FCSG325
M2S005S-1FG484	M2S010-1FGG484	M2S010TS-1FG484I	M2S025-1FGG484	M2S025TS-1FG484M	M2S050-1FCSG325I
M2S005S-1FG484I	M2S010-1FGG484I	M2S010TS-1FG484M	M2S025-1FGG484I	M2S025TS-1FGG484	M2S050-1FG484
M2S005S-1FGG484	M2S010-1TQ144	M2S010TS-1FGG484	M2S025-1VF256	M2S025TS-1FGG484I	M2S050-1FG484I
M2S005S-1FGG484I	M2S010-1TQ144I	M2S010TS-1FGG484I	M2S025-1VF256I	M2S025TS-1FGG484M	M2S050-1FG896
M2S005S-1FGG484T2	M2S010-1TQG144	M2S010TS-1FGG484M	M2S025-1VF400	M2S025TS-1FGG484T2	M2S050-1FG896I
M2S005S-1TQ144	M2S010-1TQG144I	M2S010TS-1FGG484T2	M2S025-1VF400I	M2S025TS-1VF256	M2S050-1FGG484
M2S005S-1TQ144I	M2S010-1VF256	M2S010TS-1VF256	M2S025-1VFG256	M2S025TS-1VF256I	M2S050-1FGG484I
M2S005S-1TQG144	M2S010-1VF256I	M2S010TS-1VF256I	M2S025-1VFG256I	M2S025TS-1VF400	M2S050-1FGG896
M2S005S-1TQG144I	M2S010-1VF400	M2S010TS-1VF400	M2S025-1VFG400	M2S025TS-1VF400I	M2S050-1FGG896I
M2S005S-1TQG144T2	M2S010-1VF400I	M2S010TS-1VF400I	M2S025-1VFG400I	M2S025TS-1VFG256	M2S050-1VF400
M2S005S-1VF256	M2S010-1VFG256	M2S010TS-1VFG256	M2S025-FCS325	M2S025TS-1VFG256I	M2S050-1VF400I
M2S005S-1VF256I	M2S010-1VFG256I	M2S010TS-1VFG256I	M2S025-FCS325I	M2S025TS-1VFG256T2	M2S050-1VFG400

M2S005S-1VF400	M2S010-1VFG400	M2S010TS-1VFG256T2	M2S025-FCSG325	M2S025TS-1VFG400	M2S050-1VFG400I
M2S005S-1VF400I	M2S010-1VFG400I	M2S010TS-1VFG400	M2S025-FCSG325I	M2S025TS-1VFG400I	M2S050-FCS325
M2S005S-1VFG256	M2S010-FG484	M2S010TS-1VFG400I	M2S025-FG484	M2S025TS-1VFG400T2	M2S050-FCS325I
M2S005S-1VFG256I	M2S010-FG484I	M2S010TS-1VFG400T2	M2S025-FG484I	M2S025TS-FCS325	M2S050-FCSG325
M2S005S-1VFG256T2	M2S010-FGG484	M2S010TS-FG484	M2S025-FGG484	M2S025TS-FCS325I	M2S050-FCSG325I
M2S005S-1VFG400	M2S010-FGG484I	M2S010TS-FG484I	M2S025-FGG484I	M2S025TS-FCSG325	M2S050-FG484
M2S005S-1VFG400I	M2S010S-1TQ144	M2S010TS-FGG484	M2S025T-1FCS325	M2S025TS-FCSG325I	M2S050-FG484I
M2S005S-1VFG400T2	M2S010S-1TQ144I	M2S010TS-FGG484I	M2S025T-1FCS325I	M2S025TS-FG484	M2S050-FG896
M2S005S-FG484	M2S010S-1TQG144	M2S010TS-VF256	M2S025T-1FCSG325	M2S025TS-FG484I	M2S050-FG896I
M2S005S-FG484I	M2S010S-1TQG144I	M2S010TS-VF256I	M2S025T-1FCSG325I	M2S025TS-FGG484	M2S050-FGG484
M2S005S-FGG484	M2S010S-1TQG144T2	M2S010TS-VF400	M2S025T-1FG484	M2S025TS-FGG484I	M2S050-FGG484I
M2S005S-FGG484I	M2S010S-TQ144	M2S010TS-VF400I	M2S025T-1FG484I	M2S025TS-VF256	M2S050-FGG896
M2S005S-TQ144	M2S010S-TQ144I	M2S010TS-VFG256	M2S025T-1FG484M	M2S025TS-VF256I	M2S050-FGG896I
M2S005S-TQ144I	M2S010S-TQG144	M2S010TS-VFG256I	M2S025T-1FGG484	M2S025TS-VF400	M2S050T-1FCS325
M2S005S-TQG144	M2S010S-TQG144I	M2S010TS-VFG400	M2S025T-1FGG484I	M2S025TS-VF400I	M2S050T-1FCS325I
M2S005S-TQG144I	M2S010T-1FG484	M2S010TS-VFG400I	M2S025T-1FGG484M	M2S025TS-VFG256	M2S050T-1FCSG325
M2S005S-VF256	M2S010T-1FG484I	M2S010T-VF256	M2S025T-1VF256	M2S025TS-VFG256I	M2S050T-1FCSG325I
M2S005S-VF256I	M2S010T-1FG484M	M2S010T-VF256I	M2S025T-1VF256I	M2S025TS-VFG400	M2S050T-1FG484
M2S050T-1FG484I	M2S050TS-FGG896	M2S060T-1FGG484M	M2S060TS-VF400I	M2S090T-FG484	M2S150-FCG1152I
M2S050T-1FG484M	M2S050TS-FGG896I	M2S060T-1FGG676	M2S060TS-VFG400	M2S090T-FG484I	M2S150-FCS536
M2S050T-1FG896	M2S050TS-VF400	M2S060T-1FGG676I	M2S060TS-VFG400I	M2S090T-FG676	M2S150-FCS536I
M2S050T-1FG896I	M2S050TS-VF400I	M2S060T-1VF400	M2S060T-VF400	M2S090T-FG676I	M2S150-FCSG536
M2S050T-1FGG484	M2S050TS-VFG400	M2S060T-1VF400I	M2S060T-VF400I	M2S090T-FGG484	M2S150-FCSG536I
M2S050T-1FGG484I	M2S050TS-VFG400I	M2S060T-1VFG400	M2S060T-VFG400	M2S090T-FGG484I	M2S150-FCV484
M2S050T-1FGG484M	M2S050T-VF400	M2S060T-1VFG400I	M2S060T-VFG400I	M2S090T-FGG676	M2S150-FCV484I
M2S050T-1FGG896	M2S050T-VF400I	M2S060T-FCS325	M2S060-VF400	M2S090T-FGG676I	M2S150-FCVG484
M2S050T-1FGG896I	M2S050T-VFG400	M2S060T-FCS325I	M2S060-VF400I	M2S090TS-1FCS325	M2S150-FCVG484I
M2S050T-1VF400	M2S050T-VFG400I	M2S060T-FCSG325	M2S060-VFG400	M2S090TS-1FCS325I	M2S150T-1FC1152
M2S050T-1VF400I	M2S050-VF400	M2S060T-FCSG325I	M2S060-VFG400I	M2S090TS-1FCSG325	M2S150T-1FC1152I
M2S050T-1VFG400	M2S050-VF400I	M2S060T-FG484	M2S090-1FCS325	M2S090TS-1FCSG325I	M2S150T-1FC1152M
M2S050T-1VFG400I	M2S050-VFG400	M2S060T-FG484I	M2S090-1FCS325I	M2S090TS-1FG484	M2S150T-1FCG1152
M2S050T-FCS325	M2S050-VFG400I	M2S060T-FG676	M2S090-1FCSG325	M2S090TS-1FG484I	M2S150T-1FCG1152I

M2S050T-FCS325I	M2S060-1FCS325	M2S060T-FG676I	M2S090-1FCSG325I	M2S090TS-1FG484M	M2S150T-1FCG1152M
M2S050T-FCSG325	M2S060-1FCS325I	M2S060T-FGG484	M2S090-1FG484	M2S090TS-1FG676	M2S150T-1FCS536
M2S050T-FCSG325I	M2S060-1FCSG325	M2S060T-FGG484I	M2S090-1FG484I	M2S090TS-1FG676I	M2S150T-1FCS536I
M2S050T-FG484	M2S060-1FCSG325I	M2S060T-FGG676	M2S090-1FG676	M2S090TS-1FGG484	M2S150T-1FCSG536
M2S050T-FG484I	M2S060-1FG484	M2S060T-FGG676I	M2S090-1FG676I	M2S090TS-1FGG484I	M2S150T-1FCSG536I
M2S050T-FG896	M2S060-1FG484I	M2S060TS-1FCS325	M2S090-1FGG484	M2S090TS-1FGG484M	M2S150T-1FCV484
M2S050T-FG896I	M2S060-1FG676	M2S060TS-1FCS325I	M2S090-1FGG484I	M2S090TS-1FGG484T2	M2S150T-1FCV484I
M2S050T-FGG484	M2S060-1FG676I	M2S060TS-1FCSG325	M2S090-1FGG676	M2S090TS-1FGG676	M2S150T-1FCV484M
M2S050T-FGG484I	M2S060-1FGG484	M2S060TS-1FCSG325I	M2S090-1FGG676I	M2S090TS-1FGG676I	M2S150T-1FCVG484
M2S050T-FGG896	M2S060-1FGG484I	M2S060TS-1FG484	M2S090-FCS325	M2S090TS-1FGG676T2	M2S150T-1FCVG484I
M2S050T-FGG896I	M2S060-1FGG676	M2S060TS-1FG484I	M2S090-FCS325I	M2S090TS-EVAL-KIT	M2S150T-FC1152
M2S050TS-1FCS325	M2S060-1FGG676I	M2S060TS-1FG484M	M2S090-FCSG325	M2S090TS-FCS325	M2S150T-FC1152I
M2S050TS-1FCS325I	M2S060-1VF400	M2S060TS-1FG676	M2S090-FCSG325I	M2S090TS-FCS325I	M2S150T-FCG1152
M2S050TS-1FCSG325	M2S060-1VF400I	M2S060TS-1FG676I	M2S090-FG484	M2S090TS-FCSG325	M2S150T-FCG1152I
M2S050TS-1FCSG325I	M2S060-1VFG400	M2S060TS-1FGG484	M2S090-FG484I	M2S090TS-FCSG325I	M2S150T-FCS536
M2S050TS-1FG484	M2S060-1VFG400I	M2S060TS-1FGG484I	M2S090-FG676	M2S090TS-FG484	M2S150T-FCS536I
M2S050TS-1FG484I	M2S060-FCS325	M2S060TS-1FGG484M	M2S090-FG676I	M2S090TS-FG484I	M2S150T-FCSG536
M2S050TS-1FG484M	M2S060-FCS325I	M2S060TS-1FGG484T2	M2S090-FGG484	M2S090TS-FG676	M2S150T-FCSG536I
M2S050TS-1FG896	M2S060-FCSG325	M2S060TS-1FGG676	M2S090-FGG484I	M2S090TS-FG676I	M2S150T-FCV484
M2S050TS-1FG896I	M2S060-FCSG325I	M2S060TS-1FGG676I	M2S090-FGG676	M2S090TS-FGG484	M2S150T-FCV484I
M2S050TS-1FGG484	M2S060-FG484	M2S060TS-1FGG676T2	M2S090-FGG676I	M2S090TS-FGG484I	M2S150T-FCVG484
M2S050TS-1FGG484I	M2S060-FG484I	M2S060TS-1VF400	M2S090T-1FCS325	M2S090TS-FGG676	M2S150T-FCVG484I
M2S050TS-1FGG484M	M2S060-FG676	M2S060TS-1VF400I	M2S090T-1FCS325I	M2S090TS-FGG676I	M2S150TS-1FC1152
M2S050TS-1FGG896	M2S060-FG676I	M2S060TS-1VFG400	M2S090T-1FCSG325	M2S150-1FC1152	M2S150TS-1FC1152I
M2S050TS-1FGG896I	M2S060-FGG484	M2S060TS-1VFG400I	M2S090T-1FCSG325I	M2S150-1FC1152I	M2S150TS-1FC1152M
M2S050TS-1VF400	M2S060-FGG484I	M2S060TS-1VFG400T2	M2S090T-1FG484	M2S150-1FCG1152	M2S150TS-1FCG1152
M2S050TS-1VF400I	M2S060-FGG676	M2S060TS-FCS325	M2S090T-1FG484I	M2S150-1FCG1152I	M2S150TS-1FCG1152I
M2S050TS-1VFG400	M2S060-FGG676I	M2S060TS-FCS325I	M2S090T-1FG484M	M2S150-1FCS536	M2S150TS-1FCG1152M
M2S050TS-1VFG400I	M2S060T-1FCS325	M2S060TS-FCSG325	M2S090T-1FG676	M2S150-1FCS536I	M2S150TS-1FCS536
M2S050TS-FCS325	M2S060T-1FCS325I	M2S060TS-FCSG325I	M2S090T-1FG676I	M2S150-1FCSG536	M2S150TS-1FCS536I

M2S050TS-FCS325I	M2S060T-1FCSG325	M2S060TS-FG484	M2S090T-1FGG484	M2S150-1FCSG536I	M2S150TS-1FCSG536
M2S050TS-FCSG325	M2S060T-1FCSG325I	M2S060TS-FG484I	M2S090T-1FGG484I	M2S150-1FCV484	M2S150TS-1FCSG536I
M2S050TS-FCSG325I	M2S060T-1FG484	M2S060TS-FG676	M2S090T-1FGG484M	M2S150-1FCV484I	M2S150TS-1FCV484
M2S050TS-FG484	M2S060T-1FG484I	M2S060TS-FG676I	M2S090T-1FGG676	M2S150-1FCVG484	M2S150TS-1FCV484I
M2S050TS-FG484I	M2S060T-1FG484M	M2S060TS-FGG484	M2S090T-1FGG676I	M2S150-1FCVG484I	M2S150TS-1FCV484M
M2S050TS-FG896	M2S060T-1FG676	M2S060TS-FGG484I	M2S090T-FCS325	M2S150-ADV-DEV-KIT	M2S150TS-1FCVG484
M2S050TS-FG896I	M2S060T-1FG676I	M2S060TS-FGG676	M2S090T-FCS325I	M2S150-FC1152	M2S150TS-1FCVG484I
M2S050TS-FGG484	M2S060T-1FGG484	M2S060TS-FGG676I	M2S090T-FCSG325	M2S150-FC1152I	M2S150TS-FC1152
M2S050TS-FGG484I	M2S060T-1FGG484I	M2S060TS-VF400	M2S090T-FCSG325I	M2S150-FCG1152	M2S150TS-FC1152I
M2S150TS-FCG1152	M2S150TS-FCG1152I	M2S150TS-FCS536	M2S150TS-FCS536I	M2S150TS-FCSG536	M2S150TS-FCSG536I
M2S150TS-FCV484	M2S150TS-FCV484I	M2S150TS-FCVG484	M2S150TS-FCVG484I		

M2GL005-1FG484	M2GL010T-1FG484I	M2GL025T-1FGG484M	M2GL050T-1FCSG325	M2GL060T-1FCS325I
M2GL005-1FG484I	M2GL010T-1FG484M	M2GL025T-1VF256	M2GL050T-1FCSG325I	M2GL060T-1FCSG325
M2GL005-1FGG484	M2GL010T-1FGG484	M2GL025T-1VF256I	M2GL050T-1FG484	M2GL060T-1FCSG325I
M2GL005-1FGG484I	M2GL010T-1FGG484I	M2GL025T-1VF400	M2GL050T-1FG484I	M2GL060T-1FG484
M2GL005-1FGG484T1	M2GL010T-1FGG484M	M2GL025T-1VF400I	M2GL050T-1FG484M	M2GL060T-1FG484I
M2GL005-1TQ144	M2GL010T-1VF256	M2GL025T-1VFG256	M2GL050T-1FG896	M2GL060T-1FG484M
M2GL005-1TQ144I	M2GL010T-1VF256I	M2GL025T-1VFG256I	M2GL050T-1FG896I	M2GL060T-1FG676
M2GL005-1TQG144	M2GL010T-1VF400	M2GL025T-1VFG400	M2GL050T-1FGG484	M2GL060T-1FG676I
M2GL005-1TQG144I	M2GL010T-1VF400I	M2GL025T-1VFG400I	M2GL050T-1FGG484I	M2GL060T-1FGG484
M2GL005-1VF256	M2GL010T-1VFG256	M2GL025T-FCS325	M2GL050T-1FGG484M	M2GL060T-1FGG484I
M2GL005-1VF256I	M2GL010T-1VFG256I	M2GL025T-FCS325I	M2GL050T-1FGG896	M2GL060T-1FGG484M
M2GL005-1VF400	M2GL010T-1VFG400	M2GL025T-FCSG325	M2GL050T-1FGG896I	M2GL060T-1FGG676
M2GL005-1VF400I	M2GL010T-1VFG400I	M2GL025T-FCSG325I	M2GL050T-1VF400	M2GL060T-1FGG676I
M2GL005-1VFG256	M2GL010T-FG484	M2GL025T-FG484	M2GL050T-1VF400I	M2GL060T-1VF400
M2GL005-1VFG256I	M2GL010T-FG484I	M2GL025T-FG484I	M2GL050T-1VFG400	M2GL060T-1VF400I
M2GL005-1VFG400	M2GL010T-FGG484	M2GL025T-FGG484	M2GL050T-1VFG400I	M2GL060T-1VFG400
M2GL005-1VFG400I	M2GL010T-FGG484I	M2GL025T-FGG484I	M2GL050T-FCS325	M2GL060T-1VFG400I
M2GL005-FG484	M2GL010-TQ144	M2GL025TS-1FCS325	M2GL050T-FCS325I	M2GL060T-FCS325
M2GL005-FG484I	M2GL010-TQ144I	M2GL025TS-1FCS325I	M2GL050T-FCSG325	M2GL060T-FCS325I
M2GL005-FGG484	M2GL010-TQG144	M2GL025TS-1FCSG325	M2GL050T-FCSG325I	M2GL060T-FCSG325
M2GL005-FGG484I	M2GL010-TQG144I	M2GL025TS-1FCSG325I	M2GL050T-FG484	M2GL060T-FCSG325I
M2GL005S-1FG484	M2GL010TS-1FG484	M2GL025TS-1FG484	M2GL050T-FG484I	M2GL060T-FG484
M2GL005S-1FG484I	M2GL010TS-1FG484I	M2GL025TS-1FG484I	M2GL050T-FG896	M2GL060T-FG484I
M2GL005S-1FGG484	M2GL010TS-1FG484M	M2GL025TS-1FG484M	M2GL050T-FG896I	M2GL060T-FG676

M2GL005S-1FGG484I	M2GL010TS-1FGG484	M2GL025TS-1FGG484	M2GL050T-FGG484	M2GL060T-FG676I
M2GL005S-1FGG484T2	M2GL010TS-1FGG484I	M2GL025TS-1FGG484I	M2GL050T-FGG484I	M2GL060T-FGG484
M2GL005S-1TQ144	M2GL010TS-1FGG484M	M2GL025TS-1FGG484M	M2GL050T-FGG896	M2GL060T-FGG484I
M2GL005S-1TQ144I	M2GL010TS-1FGG484T2	M2GL025TS-1FGG484T2	M2GL050T-FGG896I	M2GL060T-FGG676
M2GL005S-1TQG144	M2GL010TS-1VF256	M2GL025TS-1VF256	M2GL050TS-1FCS325	M2GL060T-FGG676I
M2GL005S-1TQG144I	M2GL010TS-1VF256I	M2GL025TS-1VF256I	M2GL050TS-1FCS325I	M2GL060TS-1FCS325
M2GL005S-1TQG144T2	M2GL010TS-1VF400	M2GL025TS-1VF400	M2GL050TS-1FCSG325	M2GL060TS-1FCS325I
M2GL005S-1VF256	M2GL010TS-1VF400I	M2GL025TS-1VF400I	M2GL050TS-1FCSG325I	M2GL060TS-1FCSG325
M2GL005S-1VF256I	M2GL010TS-1VFG256	M2GL025TS-1VFG256	M2GL050TS-1FG484	M2GL060TS-1FCSG325I
M2GL005S-1VF400	M2GL010TS-1VFG256I	M2GL025TS-1VFG256I	M2GL050TS-1FG484I	M2GL060TS-1FG484
M2GL005S-1VF400I	M2GL010TS-1VFG256T2	M2GL025TS-1VFG256T2	M2GL050TS-1FG484M	M2GL060TS-1FG484I
M2GL005S-1VFG256	M2GL010TS-1VFG400	M2GL025TS-1VFG400	M2GL050TS-1FG896	M2GL060TS-1FG484M
M2GL005S-1VFG256I	M2GL010TS-1VFG400I	M2GL025TS-1VFG400I	M2GL050TS-1FG896I	M2GL060TS-1FG676
M2GL005S-1VFG256T2	M2GL010TS-1VFG400T2	M2GL025TS-1VFG400T2	M2GL050TS-1FGG484	M2GL060TS-1FG676I
M2GL005S-1VFG400	M2GL010TS-FG484	M2GL025TS-FCS325	M2GL050TS-1FGG484I	M2GL060TS-1FGG484
M2GL005S-1VFG400I	M2GL010TS-FG484I	M2GL025TS-FCS325I	M2GL050TS-1FGG484M	M2GL060TS-1FGG484I
M2GL005S-1VFG400T2	M2GL010TS-FGG484	M2GL025TS-FCSG325	M2GL050TS-1FGG896	M2GL060TS-1FGG484M
M2GL005S-FG484	M2GL010TS-FGG484I	M2GL025TS-FCSG325I	M2GL050TS-1FGG896I	M2GL060TS-1FGG484T2
M2GL005S-FG484I	M2GL010TS-VF256	M2GL025TS-FG484	M2GL050TS-1VF400	M2GL060TS-1FGG676
M2GL005S-FGG484	M2GL010TS-VF256I	M2GL025TS-FG484I	M2GL050TS-1VF400I	M2GL060TS-1FGG676I
M2GL005S-FGG484I	M2GL010TS-VF400	M2GL025TS-FGG484	M2GL050TS-1VFG400	M2GL060TS-1FGG676T2
M2GL005S-TQ144	M2GL010TS-VF400I	M2GL025TS-FGG484I	M2GL050TS-1VFG400I	M2GL060TS-1VF400
M2GL005S-TQ144I	M2GL010TS-VFG256	M2GL025TS-VF256	M2GL050TS-FCS325	M2GL060TS-1VF400I
M2GL005S-TQG144	M2GL010TS-VFG256I	M2GL025TS-VF256I	M2GL050TS-FCS325I	M2GL060TS-1VFG400
M2GL005S-TQG144I	M2GL010TS-VFG400	M2GL025TS-VF400	M2GL050TS-FCSG325	M2GL060TS-1VFG400I
M2GL005S-VF256	M2GL010TS-VFG400I	M2GL025TS-VF400I	M2GL050TS-FCSG325I	M2GL060TS-1VFG400T2
M2GL005S-VF256I	M2GL010T-VF256	M2GL025TS-VFG256	M2GL050TS-FG484	M2GL060TS-FCS325
M2GL005S-VF400	M2GL010T-VF256I	M2GL025TS-VFG256I	M2GL050TS-FG484I	M2GL060TS-FCS325I
M2GL005S-VF400I	M2GL010T-VF400	M2GL025TS-VFG400	M2GL050TS-FG896	M2GL060TS-FCSG325
M2GL005S-VFG256	M2GL010T-VF400I	M2GL025TS-VFG400I	M2GL050TS-FG896I	M2GL060TS-FCSG325I
M2GL005S-VFG256I	M2GL010T-VFG256	M2GL025T-VF256	M2GL050TS-FGG484	M2GL060TS-FG484
M2GL005S-VFG400	M2GL010T-VFG256I	M2GL025T-VF256I	M2GL050TS-FGG484I	M2GL060TS-FG484I
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M2GL005-TQ144	M2GL010T-VFG400I	M2GL025T-VF400I	M2GL050TS-FGG896I	M2GL060TS-FG676I
M2GL005-TQ144I	M2GL010-VF256	M2GL025T-VFG256	M2GL050TS-VF400	M2GL060TS-FGG484
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M2GL005-TQG144I	M2GL010-VF400	M2GL025T-VFG400	M2GL050TS-VFG400	M2GL060TS-FGG676
M2GL005-VF256	M2GL010-VF400I	M2GL025T-VFG400I	M2GL050TS-VFG400I	M2GL060TS-FGG676I
M2GL005-VF256I	M2GL010-VFG256	M2GL025-VF256	M2GL050T-VF400	M2GL060TS-VF400
M2GL005-VF400	M2GL010-VFG256I	M2GL025-VF256I	M2GL050T-VF400I	M2GL060TS-VF400I
M2GL005-VF400I	M2GL010-VFG400	M2GL025-VF400	M2GL050T-VFG400	M2GL060TS-VFG400

M2GL005-VFG256	M2GL010-VFG400I	M2GL025-VF400I	M2GL050T-VFG400I	M2GL060TS-VFG400I
M2GL005-VFG256I	M2GL025-1FCS325	M2GL025-VFG256	M2GL050-VF400	M2GL060T-VF400
M2GL005-VFG400	M2GL025-1FCS325I	M2GL025-VFG256I	M2GL050-VF400I	M2GL060T-VF400I
M2GL005-VFG400I	M2GL025-1FCSG325	M2GL025-VFG400	M2GL050-VFG400	M2GL060T-VFG400
M2GL010-1FG484	M2GL025-1FCSG325I	M2GL025-VFG400I	M2GL050-VFG400I	M2GL060T-VFG400I
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M2GL010-1FGG484T1	M2GL025-1FGG484I	M2GL050-1FCSG325I	M2GL060-1FCSG325I	M2GL060-VFG400I
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M2GL010-1TQ144I	M2GL025-1VF256	M2GL050-1FG484I	M2GL060-1FG484I	M2GL090-1FCS325I
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M2GL010-1VF400	M2GL025-1VFG256I	M2GL050-1FGG896	M2GL060-1FGG484T1	M2GL090-1FG676
M2GL010-1VF400I	M2GL025-1VFG400	M2GL050-1FGG896I	M2GL060-1FGG676	M2GL090-1FG676I
M2GL010-1VFG256	M2GL025-1VFG400I	M2GL050-1VF400	M2GL060-1FGG676I	M2GL090-1FGG484
M2GL010-1VFG256I	M2GL025-FCS325	M2GL050-1VF400I	M2GL060-1VF400	M2GL090-1FGG484I
M2GL010-1VFG400	M2GL025-FCS325I	M2GL050-1VFG400	M2GL060-1VF400I	M2GL090-1FGG484T1
M2GL010-1VFG400I	M2GL025-FCSG325	M2GL050-1VFG400I	M2GL060-1VFG400	M2GL090-1FGG676
M2GL010-FG484	M2GL025-FCSG325I	M2GL050-FCS325	M2GL060-1VFG400I	M2GL090-1FGG676I
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M2GL010S-1TQ144	M2GL025-FGG484I	M2GL050-FG484	M2GL060-FCSG325I	M2GL090-FCSG325I
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M2GL010S-1TQG144T2	M2GL025T-1FCSG325I	M2GL050-FGG484	M2GL060-FG676I	M2GL090-FG676I
M2GL010S-TQ144	M2GL025T-1FG484	M2GL050-FGG484I	M2GL060-FGG484	M2GL090-FGG484
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M2GL090T-1FCS325I	M2GL090TS-1FCS325	M2GL090TS-FGG484I	M2GL150-FCVG484	M2GL150T-FCV484
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M2GL090T-1FG484	M2GL090TS-1FCSG325I	M2GL150-1FC1152	M2GL150T-1FC1152I	M2GL150T-FCVG484I
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M2GL090T-1FG676	M2GL090TS-1FG484M	M2GL150-1FCG1152I	M2GL150T-1FCG1152I	M2GL150TS-1FC1152M
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M2GL090T-1FGG676I	M2GL090TS-1FGG484T2	M2GL150-1FCV484I	M2GL150T-1FCV484	M2GL150TS-1FCSG536
M2GL090T-FCS325	M2GL090TS-1FGG676	M2GL150-1FCVG484	M2GL150T-1FCV484I	M2GL150TS-1FCSG536I
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M2GL090T-FCSG325	M2GL090TS-1FGG676T2	M2GL150-FC1152	M2GL150T-1FCVG484	M2GL150TS-1FCV484I
M2GL090T-FCSG325I	M2GL090TS-FCS325	M2GL150-FC1152I	M2GL150T-1FCVG484I	M2GL150TS-1FCV484M
M2GL090T-FG484	M2GL090TS-FCS325I	M2GL150-FCG1152	M2GL150T-FC1152	M2GL150TS-1FCVG484
M2GL090T-FG484I	M2GL090TS-FCSG325	M2GL150-FCG1152I	M2GL150T-FC1152I	M2GL150TS-1FCVG484I
M2GL090T-FG676	M2GL090TS-FCSG325I	M2GL150-FCS536	M2GL150T-FCG1152	M2GL150TS-FC1152
M2GL090T-FG676I	M2GL090TS-FG484	M2GL150-FCS536I	M2GL150T-FCG1152I	M2GL150TS-FC1152I
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M2GL090T-FGG676I	M2GL090TS-FGG484	M2GL150-FCV484I	M2GL150T-FCSG536I	M2GL150TS-FCS536I
M2GL150TS-FCSG536	M2GL150TS-FCSG536I	M2GL150TS-FCV484	M2GL150TS-FCV484I	M2GL150TS-FCVG484
M2GL150TS-FCVG484I				

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