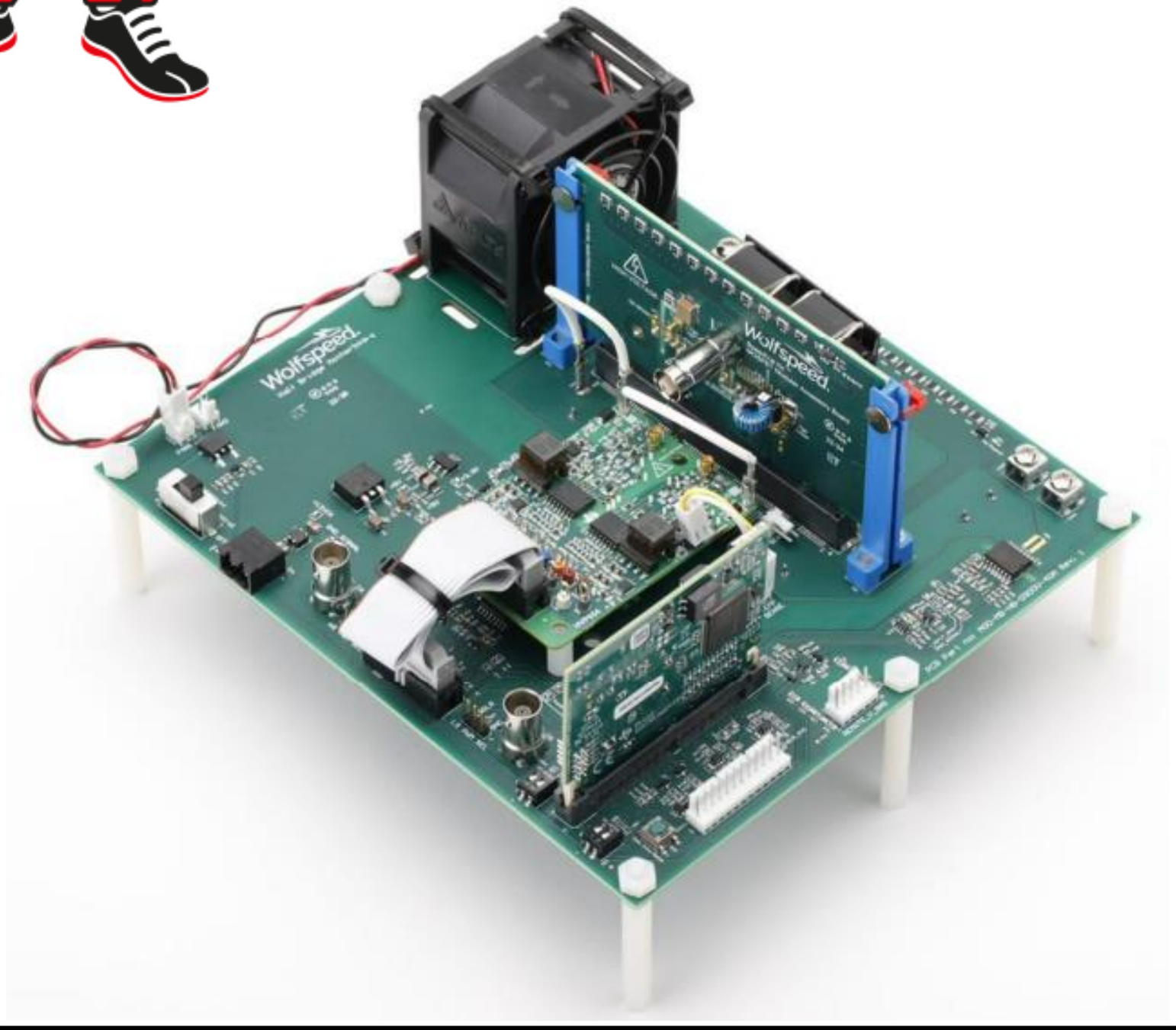
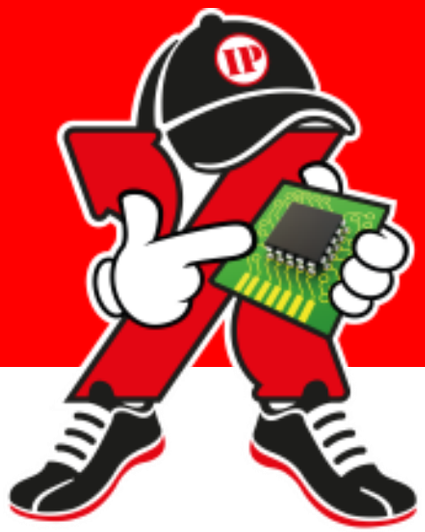
Mr. X's Guide to Wolfspeed's SpeedVal Kit™ Configurator



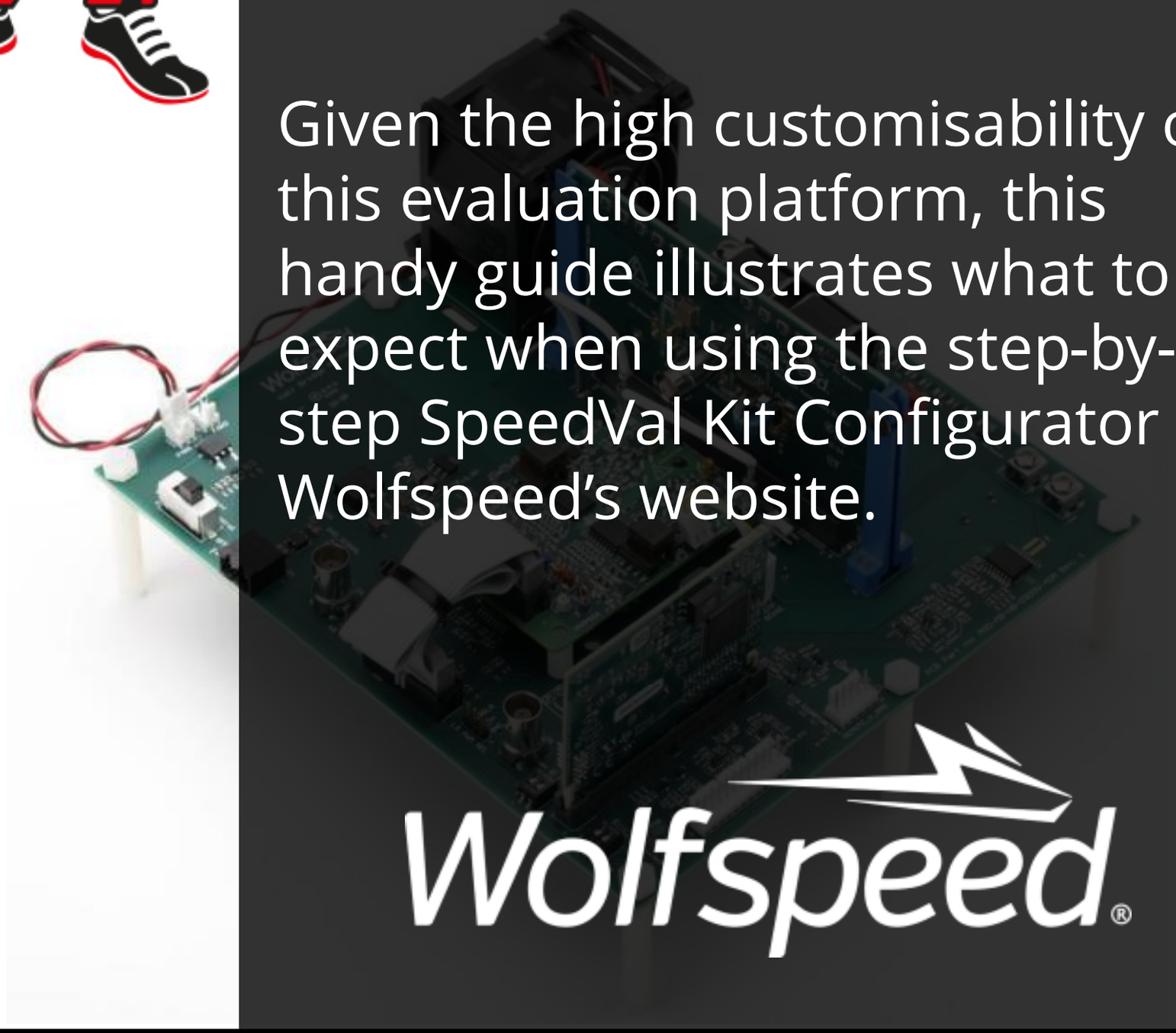


Mr. X's Guide to Wolfspeed's SpeedVal Kit™ Configurator

Wolfspeed's SpeedVal Kit™ platform is designed for testing their silicon carbide MOSFETs at real operating conditions to enable easy evaluation and optimisation of their performance and facilitate a transition from silicon to silicon carbide in many applications.

Wolfspeed®

Mr. X's Guide to Wolfspeed's SpeedVal Kit™ Configurator



Given the high customisability of this evaluation platform, this handy guide illustrates what to expect when using the step-by-step SpeedVal Kit Configurator on Wolfspeed's website.

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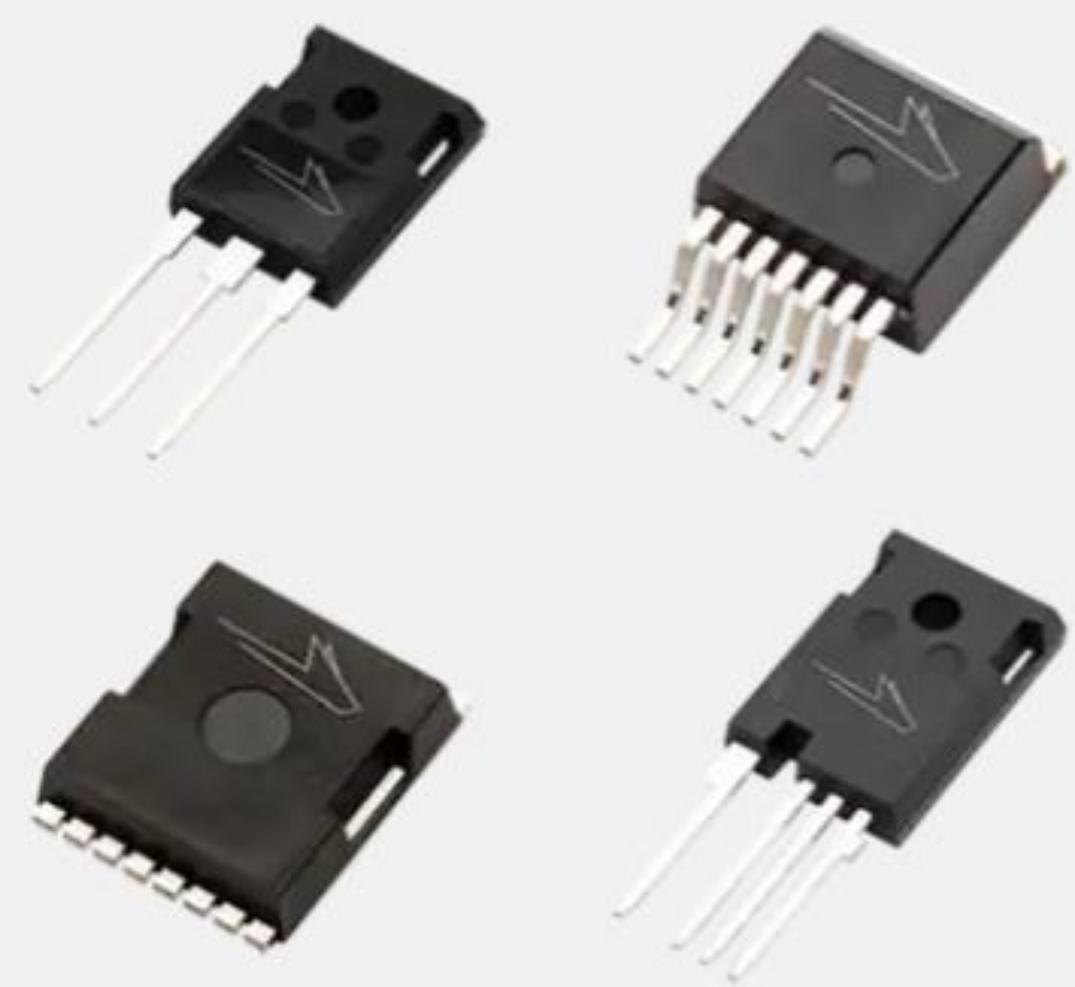
Step 1:
Choose Product Type



The platform where technology and design combine.

ipXchange.tech

Step 1:
Choose Product Type

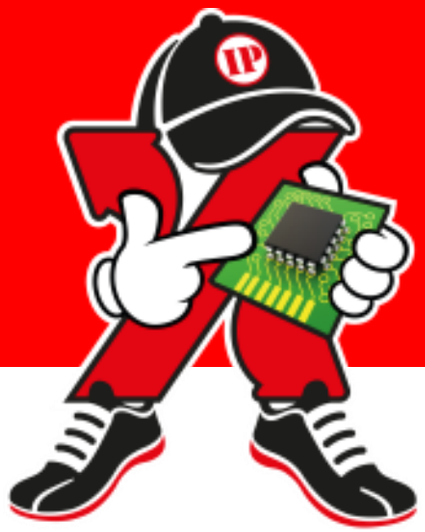
Presently, SpeedVal only supports discrete products for evaluation, with Wolfspeed's power modules to come later.

The "Discrete Products" category is marked as a single selection box without individual options or specifications listed.

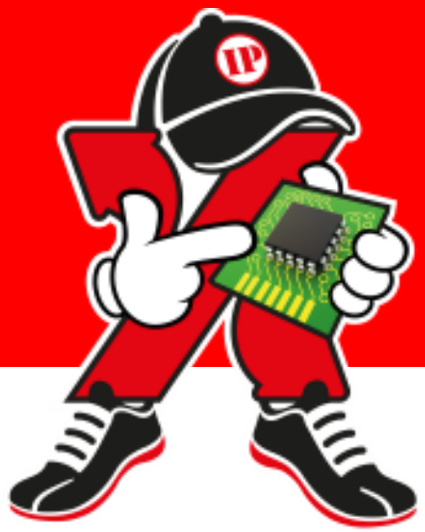
Step 1:
Choose Product Type

Specific component testing is chosen in the later steps of the configurator.

Note: This is the only step in the configurator that cannot be skipped.



Step 2:
Choose Motherboard

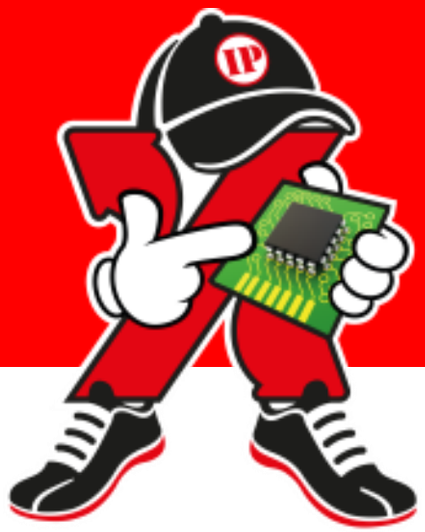


Step 2: Choose Motherboard

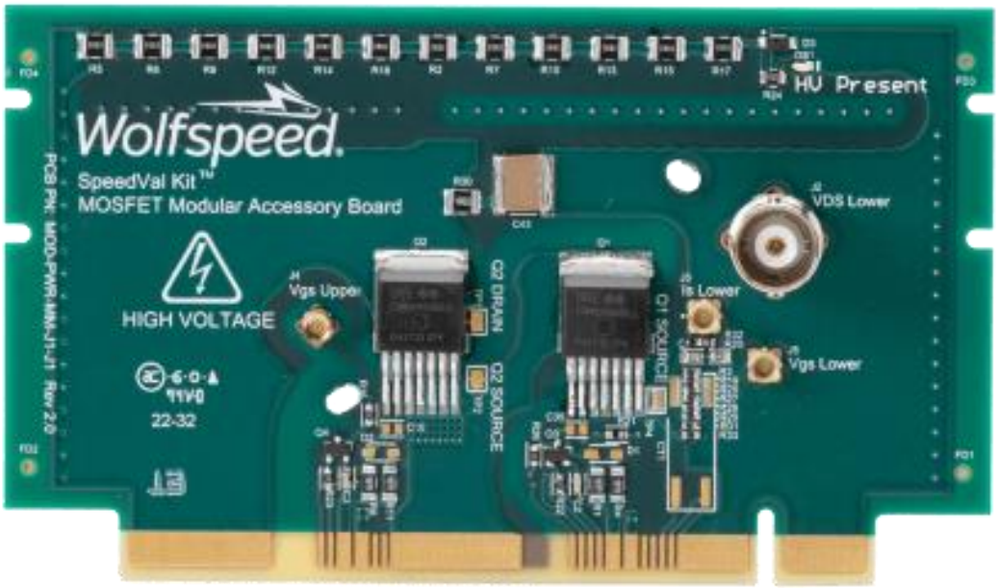
For the Discrete Products selection, there is a single option for the SpeedVal Kit Motherboard, the heart of the platform.

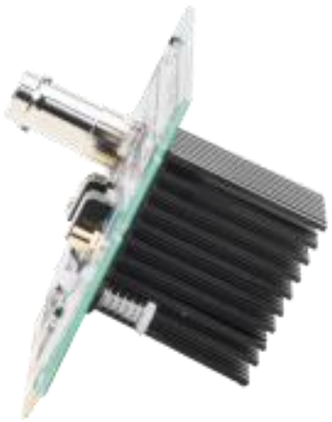
This half-bridge configuration is rated at 900 V, 40 A, and contains:

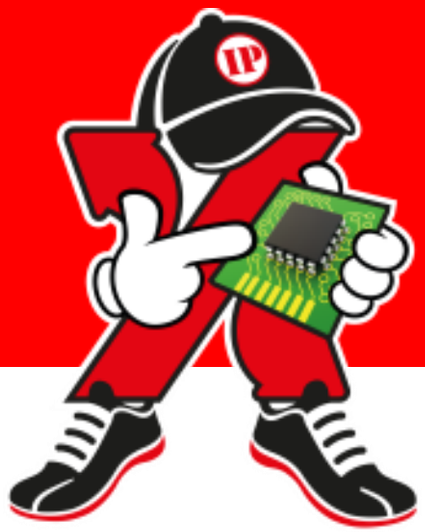
- Power connections
- DC bus
- Interface for the daughter cards
- A fan that enables high-power testing



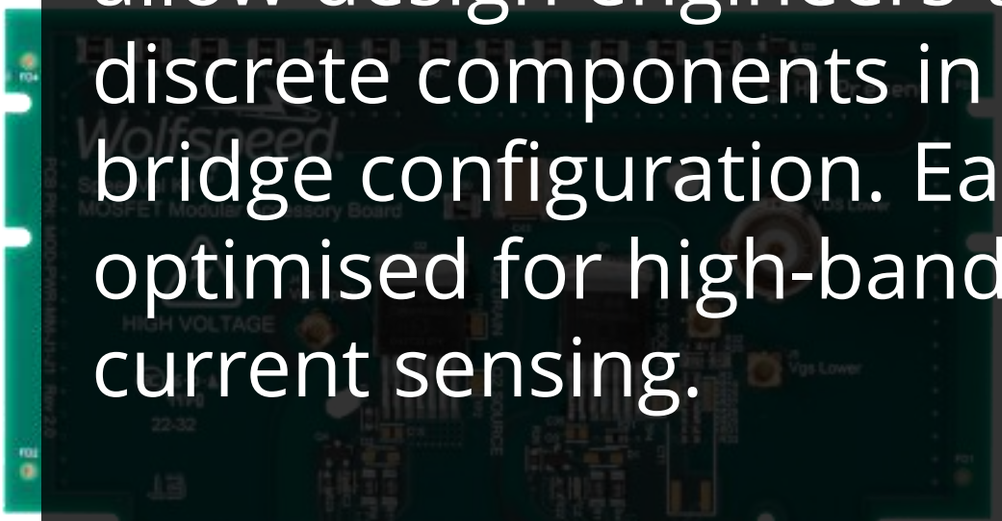
Step 3: Configure Power Daughter Card





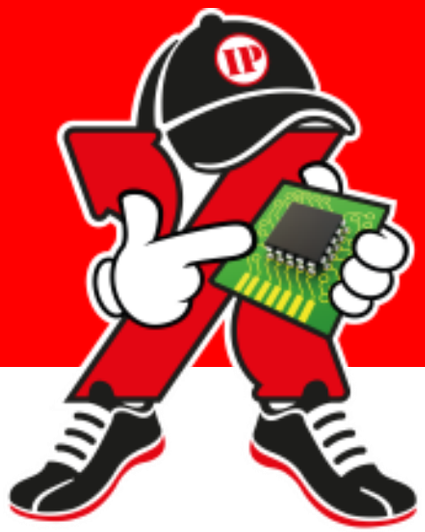


Step 3: Configure Power Daughter Card



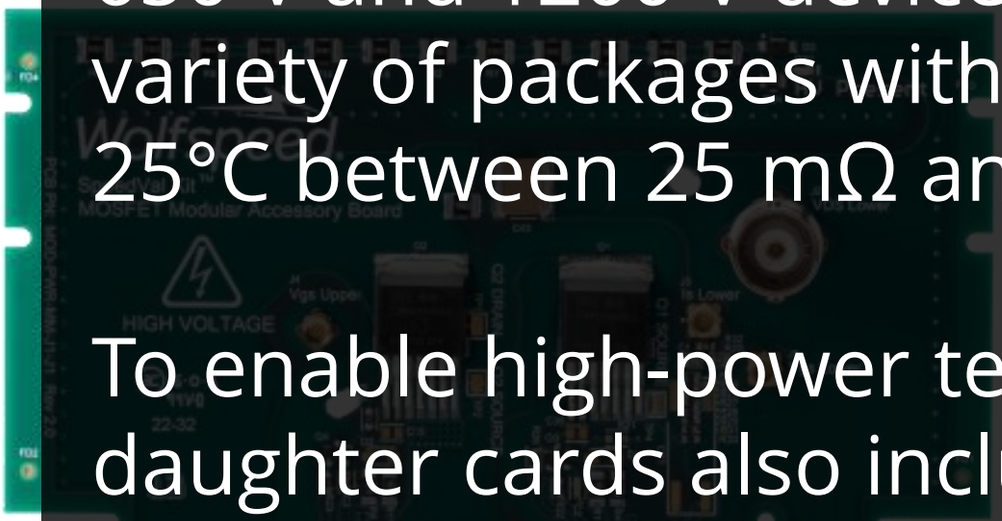
Thirteen power daughter cards allow design engineers to evaluate discrete components in half-bridge configuration. Each is optimised for high-bandwidth current sensing.

These cards slot into the motherboard via an easily swappable, low inductance connection and have on-board gate resistors.

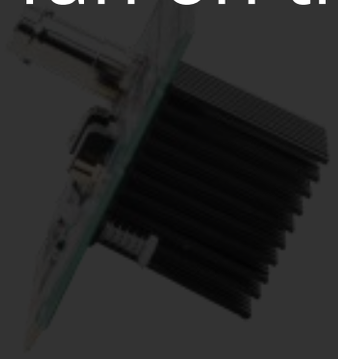


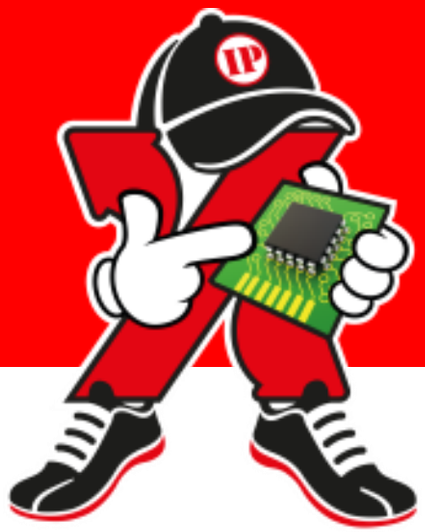
Step 3: Configure Power Daughter Card

Users can choose from a range of 650 V and 1200 V devices in a variety of packages with $R_{DS(On)}$ at 25°C between 25 mΩ and 75 mΩ.

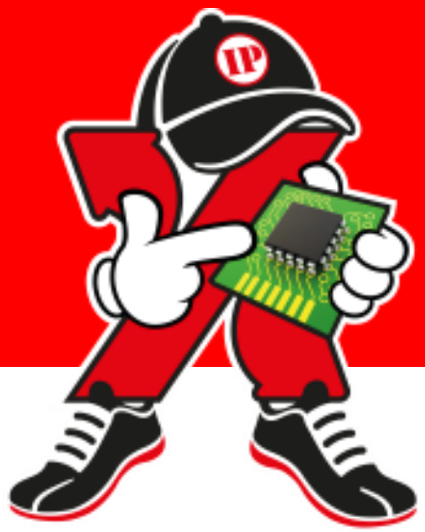


To enable high-power testing, the daughter cards also include a pre-assembled heat sink that aligns with a fan on the motherboard.





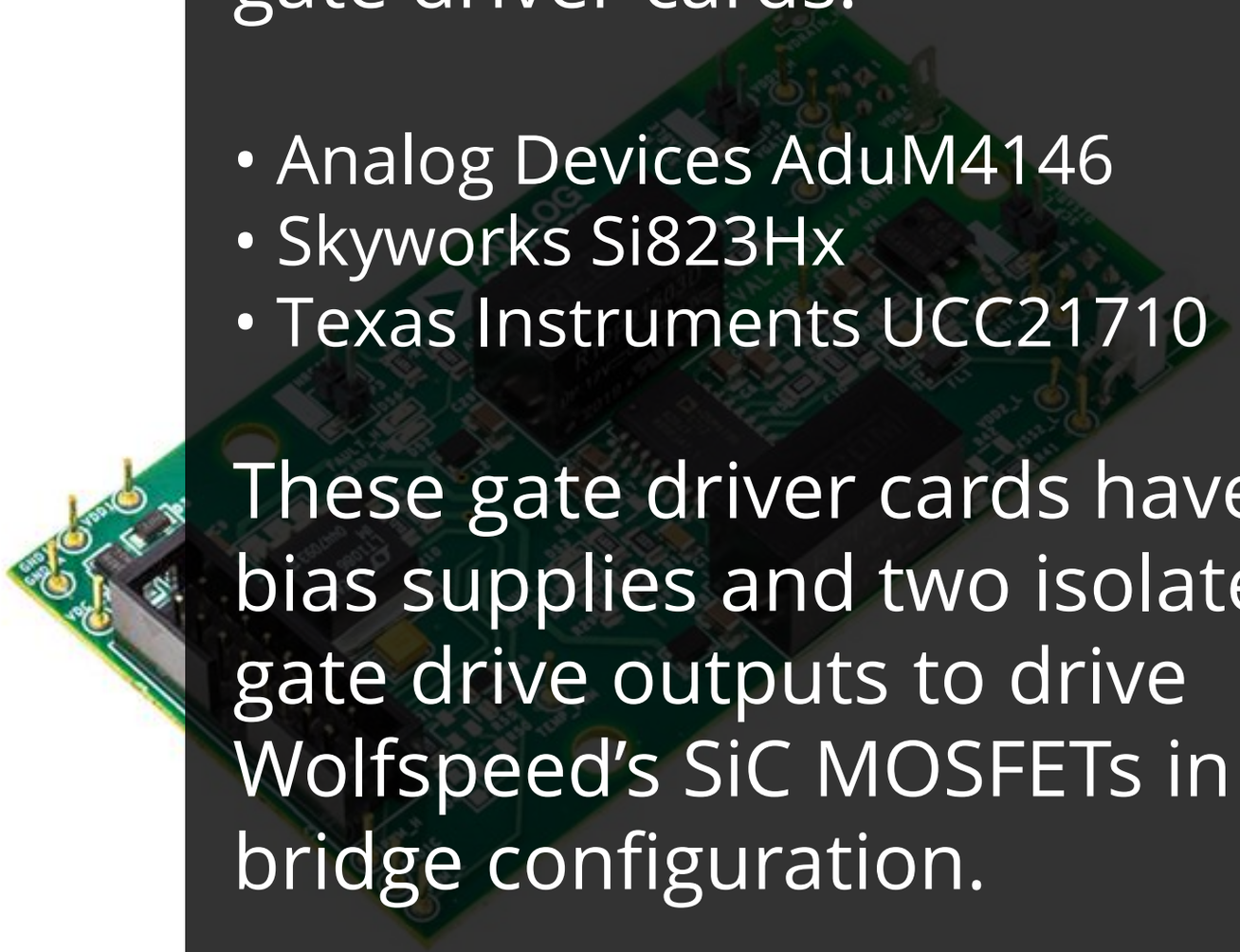
Step 4:
Choose Gate Driver Card



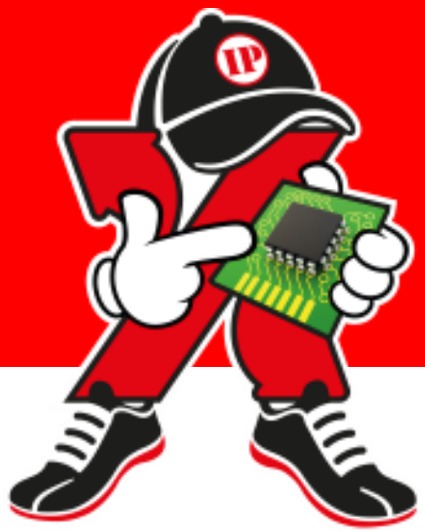
Step 4:
Choose Gate Driver Card

Wolfspeed offers three options for gate driver cards:

- Analog Devices AduM4146
- Skyworks Si823Hx
- Texas Instruments UCC21710

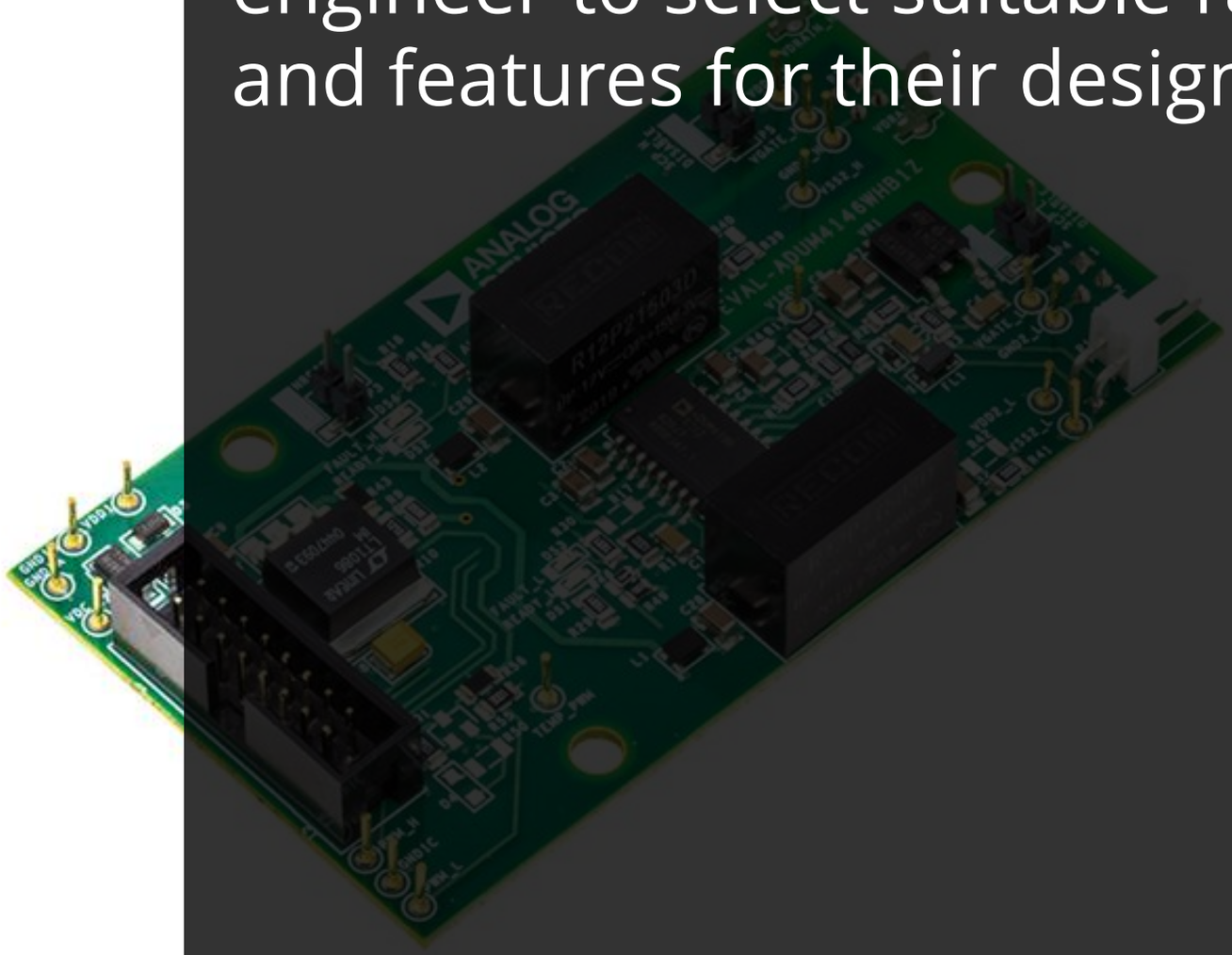


These gate driver cards have gate bias supplies and two isolated gate drive outputs to drive Wolfspeed's SiC MOSFETs in half-bridge configuration.



Step 4:
Choose Gate Driver Card

The swappable cards enable the engineer to select suitable ratings and features for their design.

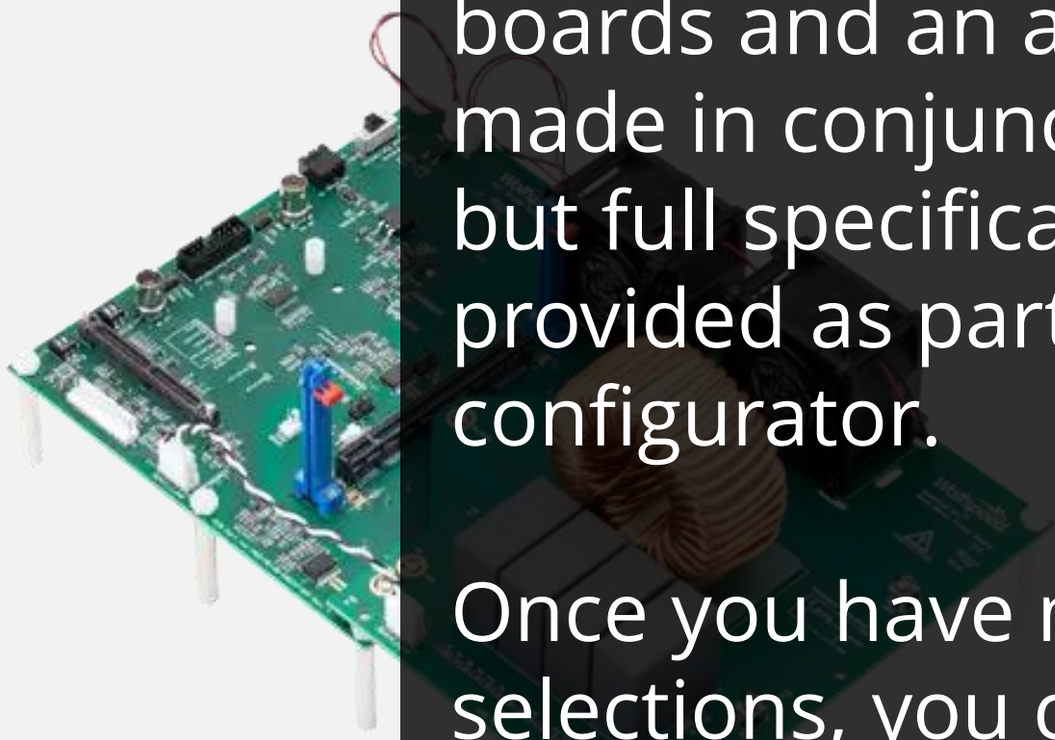


Step 5: Choose Optional Accessories

Step 5: Choose Optional Accessories

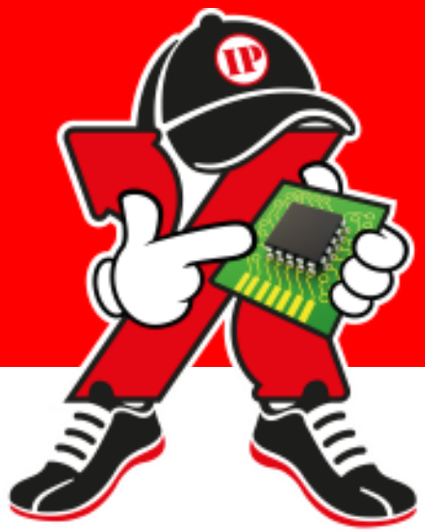
This final step allows the user to add multiple units of additional accessories that may be useful for making more effective evaluations of Wolfspeed's SiC discrete devices in different system configurations.

Step 5: Choose Optional Accessories



The three options include 190 µH and 400 µH buck-boost filter boards and an air-core inductor made in conjunction with Bourns, but full specifications are not provided as part of the configurator.

Once you have made your selections, you can click “Get My Configuration” to finish.



My Configuration

Wolfspeed

My Wolfspeed Speedval Kit Configuration

Description	Manufacturer Name	Manufacturer P/N	Quantity
Motherboard	Wolfspeed	MOD-MB-HB-0900V-40A	1
Power Card	Wolfspeed	MOD-PWR-MM-C3M0060065L	1
Gate Driver Card	Skyworks	Si823H-ACWA-KIT	1
Accessory	Wolfspeed	MOD-ACC-BUCKBOOST-400uH	1

You May Also Be Interested In

CRD-02AD065N
CRD-03600AD065E-L
CRD-06600DD065N
CRD-06600FF065N-K
CRD-06600FF10N
CRD-15DD17P
CRD-20DD09P-2
CRD-22AD12N
CRD-22DD12N
CRD30DD12N-K
CRD-60DD12N

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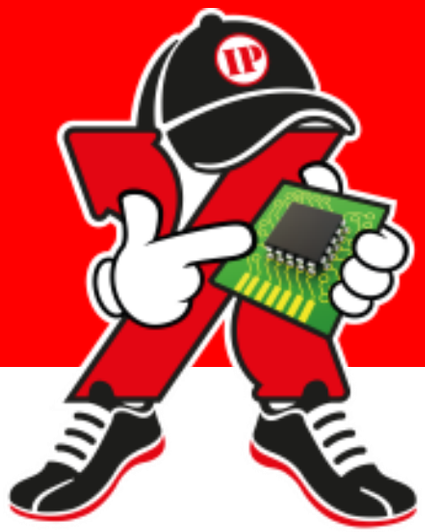
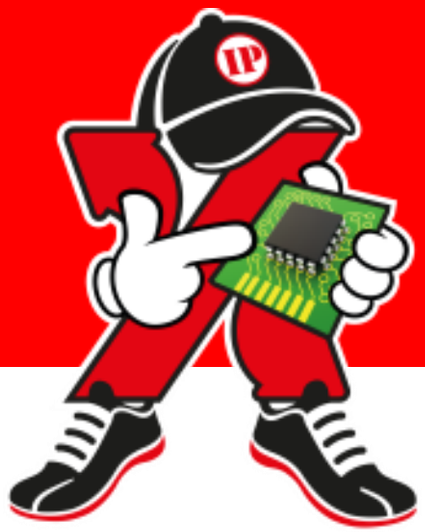


My Configuration

With your selections made, Wolfspeed provides a list of your chosen boards and download links to pdf and BOM csv files so you can keep track of what parts you need to order for your custom SpeedVal configuration.

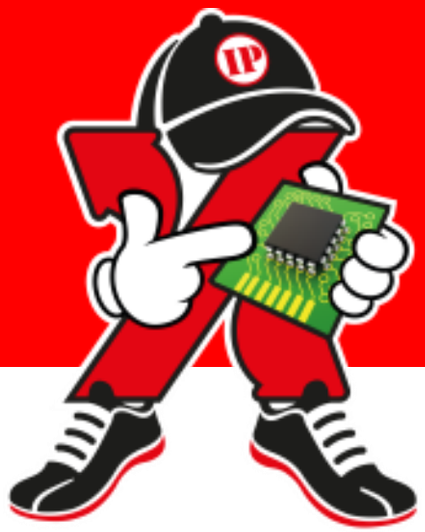
Links to online distributors are also provided for each part.



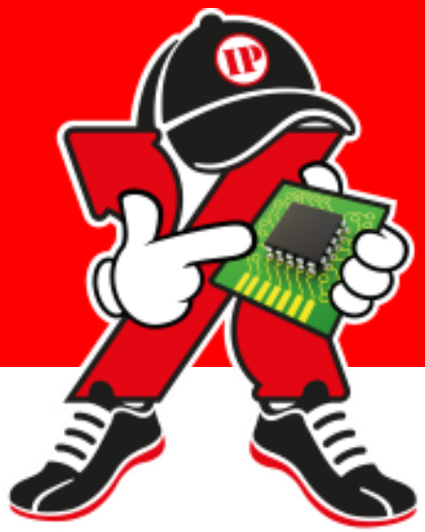
My Configuration

There is also an option to e-mail this configuration to a chosen address. This opens a pop-up with the typical terms and conditions and opt-in for marketing content from Wolfspeed.

If you want to change your configuration in any way, you can easily edit your choices and quantities or create a new configuration to start the process again.



Optional: Controller Board

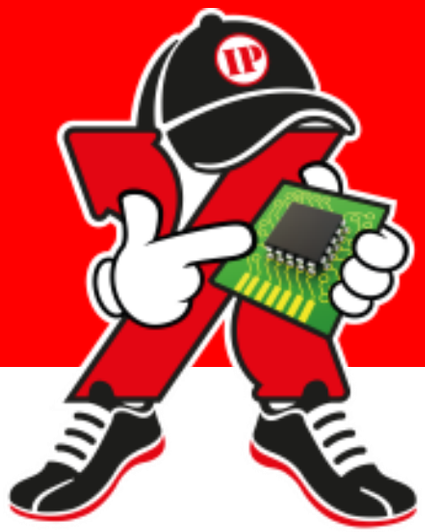


Optional: Controller Board

Not included as part of the configurator, the motherboard also supports control cards from industry-leading partners.

The SpeedVal user guide specifies two options:

- TI TMDSCNCD280039C
- NXP HVP-56F83783



Optional: Controller Board

Due to the different form factors, the NXP option requires the use of an interposer board that is included as part of the SpeedVal Motherboard Kit.

This concludes Mr X's guide to Wolfspeed's SpeedVal Kit™ Configurator. We hope this has been helpful, and as always,

Keep designing!