Faster Bypassing

The DS541 DPMEM POD (plug-on device with dual-port memory) is a dSPACE off-the-shelf product that fits Freescale's VertiCal architecture for the MPC55xx microcontroller. Because it provides direct access to the microcontroller bus, the DS541 achieves very low latencies in function bypassing. It is also ideal for tasks other than bypassing, such as ECU calibration.

◢ **Off-the-shelf POD for VertiCal architecture**

◢ **Function bypassing and ECU calibration**

◢ **On-board DPMEM and LVDS interface**
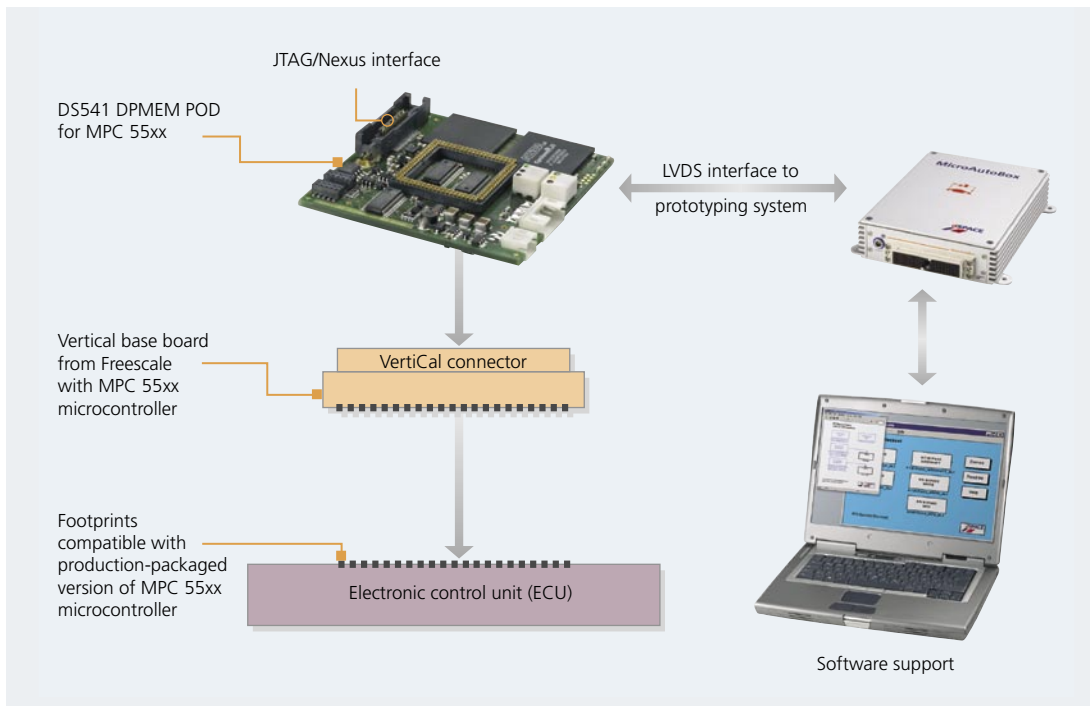
Minimal Latencies in Function Bypassing

The new DS541 from dSPACE minimizes communication latencies between the prototyping hardware and the electronic control unit (ECU) during bypassing. This makes it ideal for bypassing ECU functions that require fast execution rates and a large number of model inputs and outputs. The DS541 is a top board for the MPC55xx VertiCal Base Board from Freescale, which can be connected to the ECU simply by installing it in place of the ECU's original microcontroller. Low latencies, combined with high signal integrity, are achieved by several factors: direct access to the microcontroller bus via the VertiCal connector, very short signal line lengths between the dual-port memory and the MPC55xx, and a fast LVDS interface. The available Simulink blocksets support two variants of external bypassing: address-based and service-based bypassing.

ECU Calibration via Nexus or CAN

The DS541 has an additional RAM component that allows it to be used as a memory for calibration data. If the POD's voltage supply is connected to the vehicle battery, the data is retained after the ECU is switched off. The calibration interface can be, for example, the ECU's CAN bus, or the JTAG/Nexus interface available on the DS541 itself. The Nexus connection can also be used as an interface for debugging ECUs or for flash programming. Further plug-on boards can be connected via the DS541's VertiCal connector, for example, for memory emulation.

For further information, please see
www.dspace.com/goto?releases

JTAG/Nexus interface

DS541 DPMEM POD for MPC 55xx

LVDS interface to prototyping system

Vertical base board from Freescale with MPC 55xx microcontroller

VertiCal connector

Footprints compatible with production-packaged version of MPC 55xx microcontroller

Electronic control unit (ECU)

Software support

▲ *The new DS541 simply plugs onto an MPC55xx VertiCal Base Board from Freescale.*