

Consumer-band BPSK 7.2 kbps PLM PICtail™ Plus Daughter Board Information Sheet

The Consumer-band BPSK 7.2 kbps PLM PICtail™ Plus Daughter Board provides a low cost method for the development and testing of consumer applications implementing a Powerline Communication Softmodem, which is driven by a dsPIC33F device. The daughter board operates at a consumer-band carrier frequency of 129.6 kHz.

Any dsPIC33F device with at least 2 Kbytes RAM, 16 Kbytes of Flash memory, four Output Compare channels, one DMA channel, and one 12-bit ADC input (at least 500 ksps), can be used with this daughter board. Please refer to the user's guide for more details regarding the resource requirements.

The evaluation kit includes a pair of daughter boards and two High Voltage (HV) AC power line adapter cables. Two Explorer 16 boards (purchased separately – PN: DM240001) are required to evaluate the daughter boards. A Microchip programming/debugging tool is also required to program/debug the firmware on the dsPIC33F device.

Installing MPLAB® IDE and C Compilers

The MPLAB Integrated Development Environment (IDE) should be installed prior to using a daughter board for application development. While MPLAB IDE provides the assembler tools for development, demo applications are written in the C language and require a C compiler to be installed. Microchip's MPLAB C Compiler seamlessly integrates into MPLAB IDE. Both the MPLAB IDE and MPLAB C compiler are free (see the note below) and are available for download at www.microchip.com/MPLAB and www.microchip.com/compilers, respectively.

Note: Standard Evaluation (Free) – All optimization levels are enabled for 60 days, but then revert to optimization level 1 only.

Demo Applications and More Information

For free demo source code and more information, please visit the related web page at www.microchip.com/powerline. From the landing page, select **Consumer-band BPSK 7.2 kbps PLM PICtail Plus Daughter Board**. In the download section, select a demo application (such as the Ping-Pong demo), to download an archive file that contains the related demo source code files. Refer to the user's guide in the download section for additional information.

Running the Demo Application

After downloading the ping-pong demo application code and installing the development tools, use the following procedure to run the demonstration:

1. Insert a dsPIC33FJ256GP710A PIM into the first Explorer 16 Development Board.
2. Plug a daughter board into the PICtail Plus expansion slot on this Explorer 16 Development Board and connect the RCA jack of the HV adapter cable (provided in the kit) to the daughter board.
3. Plug the AC end of the HV adapter cable into an 110V/220V power outlet.
4. Connect a Microchip programming/debugging tool to the Explorer 16 Development Board and power up the Explorer 16 Development Board.
5. Double-click the `pingpong.mcp` file to load the ping-pong demo project into MPLAB IDE.
6. Choose your programming tool in MPLAB IDE by selecting *Programmer > Select Programmer*, and then select the tool you are using to program the dsPIC33F device.
7. Build the project by selecting *Project > Build All*.
8. Download your code into the dsPIC33F device by selecting *Programmer > Program*.
9. Repeat steps 1 through 8 for the second daughter board.
10. The demo code previously downloaded pings frames of data back and forth between the two evaluation kits. Initiate the demonstration by pressing the S5 button on either of the Explorer 16 Development Boards. The transmit frame count (TX) and the receive frame count (RX) displayed on the Explorer 16 Development Board LCD screen should increment for both of the daughter boards.

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