A33020/22/23 Evaluation Tools Quick Start Guide

DESCRIPTION

Allegro provides tools to assist in the evaluation of its sensor products. This document provides information to establish the interface between the supported tools and the A33020, A33022, or A33023 (A33020/22/23) angle sensor. Simple instructions are included to help users begin to use the hardware and software support tools.

EVALUATION TOOLS

- Programmer:
  - □ ASEK-30 is the evaluation programmer that provides the interface between the sensor and software for essential communication and evaluation.

Figure 1: ASEK-30

- Accessories:
  - □ ASEK-30-INT-MPS-001 is the interface board that routes the required signals from the ASEK-30 to allow for easily accessible connections. The interface board is ideal for use with the optional socket board or with an application module that integrates the supported sensors.

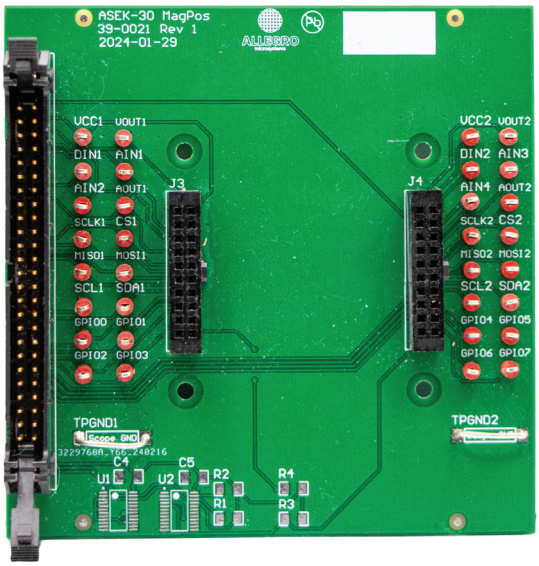


Figure 2: ASEK-30-INT-MPS-001

  - □ ASEK-30-SOC-MPS01SD is an optional socket board that provides a direct connection from the A33020, A33022, or A33023 single-die (SD) product to the ASEK interface board. The socket board does not require additional hardware and is ideal for ease of interface and evaluation.

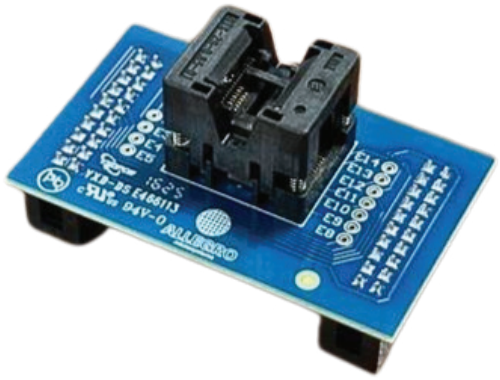


Figure 3: ASEK-30-SOC-MPS01SD

  - □ ASEK-30-SOC-MPS01DD is an optional socket board that provides a direct connection from the A33020, A33022, or A33023 dual-die (DD) product to the Allegro sensor evaluation kit (ASEK) interface board. The socket board does not require additional hardware and is ideal for ease of interface and evaluation.

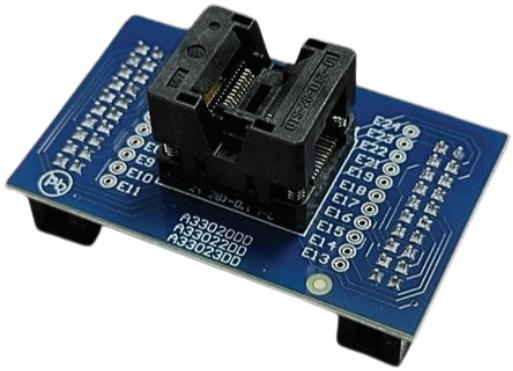
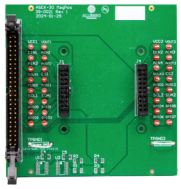
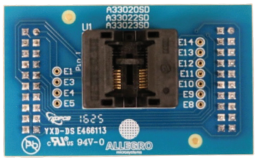
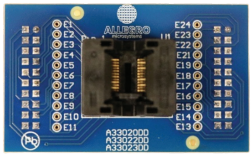
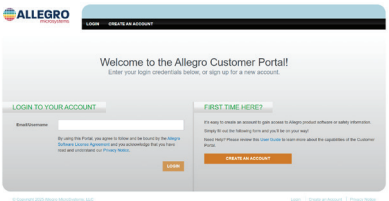
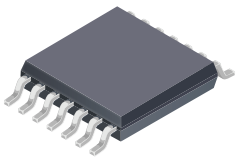


Figure 4: ASEK-30-SOC-MPS01DD

  - □ A33020/22/23 Allegro Application Samples Programmer (AASP) application (available for download from the Allegro Software Portal [1]; registration is required) is the software that interfaces with the ASEK-30, ASEK-30 interface board, and A33020/22/23 sensor. This software includes an application programming interface (API) and supporting dynamic link libraries (DLLs). The software is designed to operate on a PC with the Windows operating system.

[1] See https://registration.allegromicro.com/. Additional instructions that detail how to find and identify product software and documentation is available at https://www.allegromicro.com/~/media/files/Demo-Boards/User-Manuals/Customer-Portal-User-Guide.pdf

MATERIALS AND EQUIPMENT

Part Number	Included Materials and Resources	Image
ASEK-30	Included materials: • ASEK-30 programmer • AC/DC power adapter, 12 V 60 W • Power cord, NEMA 5-15P To IEC 320-C13, 6.0 ft. • USB 2.0 Cable: USB-A male to USB-C male, 3.28 ft., shielded • IDC ribbon cable, 50-conductor cable Resources: • ASEK-30 web page: https://www.allegromicro.com/en/asek-30	
ASEK-30-INT-MPS-001	Resources: • ASEK-30 web page: https://www.allegromicro.com/en/asek-30	
ASEK-30-SOC-MPS01SD or ASEK-30-SOC-MPS01DD	Resources: • ASEK-30-SOC-MPS01SD web page: https://www.allegromicro.com/en/design-support/programmer/asek-30/asek-30-soc-mps01sd • ASEK-30-SOC-MPS01DD web page: https://www.allegromicro.com/en/design-support/programmer/asek-30/asek-30-soc-mps01dd	Single-Die  Dual-Die 
A33020/22/23 Allegro Application Samples Programmer (AASP)	Available for download from the Allegro Software Portal [1]: • Software application for selected Allegro sensor: □ Allegro A33020 Samples Programmer AASP for ASEK-30 □ Allegro A33022 Samples Programmer AASP for ASEK-30 □ Allegro A33023 Samples Programmer AASP for ASEK-30 • User manual for selected Allegro sensor • Supporting DLLs	
A33020(/22/23)LLEATR Samples	Available by request on the product web page: • A33020 web page: https://www.allegromicro.com/en/products/sense/linear-and-angular-position/angular-position-sensor-ics/a33020 • A33022 web page: https://www.allegromicro.com/en/products/sense/linear-and-angular-position/angular-position-sensor-ics/a33022 • A33023 web page: https://www.allegromicro.com/en/products/sense/linear-and-angular-position/angular-position-sensor-ics/a33023	

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GETTING STARTED WITH HARDWARE

1. Connect the ASEK-30 to a personal computer (PC) as follows:
   A. Connect the USB-A male connector to the PC; and
   B. Connect the USB-C male connector to the ASEK-30.
2. Connect power as follows:
   A. Connect the DC port from the power adapter cable to the 12 V port on the ASEK-30 rear panel;
   B. Connect the AC power supply cord to a 110 V/220 AC 60/50 Hz outlet with the proper adapter; and
   C. Connect the other end of the power cord to the power adapter.
3. Connect the programmer to the device as follows (see Figure 6):
   A. Connect one end of the 50-conductor insulation displacement connector (IDC) ribbon cable to the ASEK-30 primary header; and
   B. Connect the other end of the 50-conductor IDC ribbon cable to J1 of the interface board.
4. Connect the socket board to the interface board.
5. Place the A33020/22/23 device in the socket board with the proper orientation.
6. Toggle the ASEK-30 ON-OFF switch to the ON position. The power LED on the ASEK illuminates to indicate the ASEK-30 is in the power-on state.
7. Run the application software.

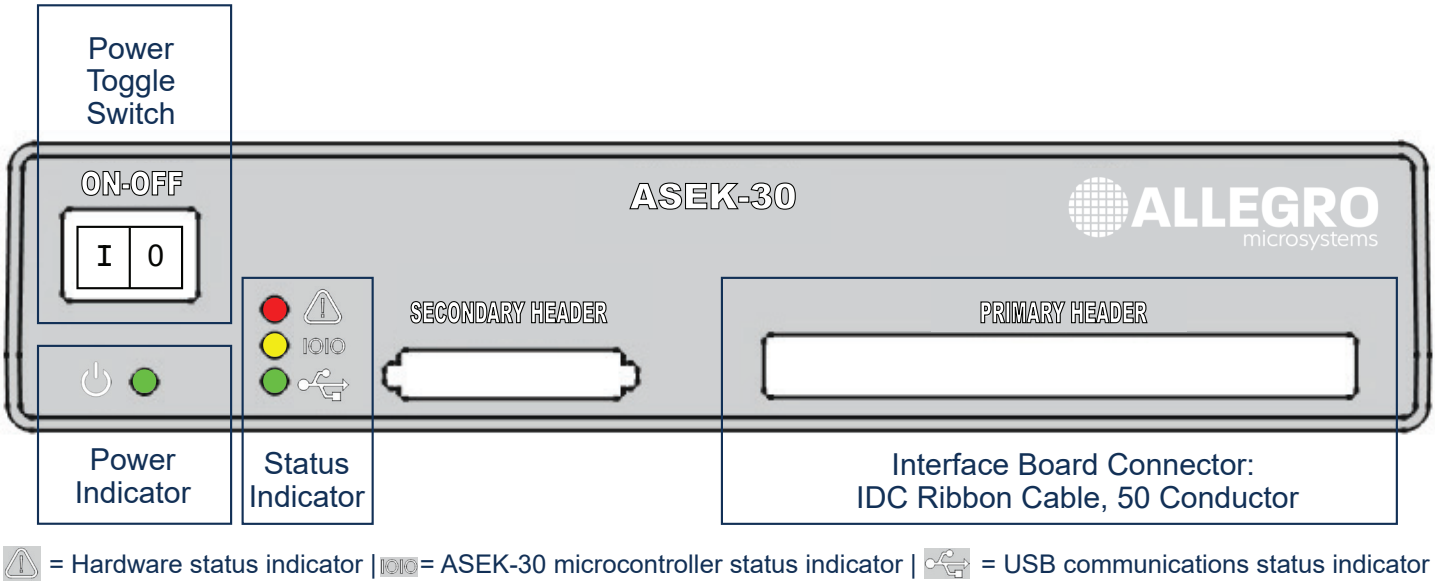

Figure 5: ASEK-30 (Front Panel View)

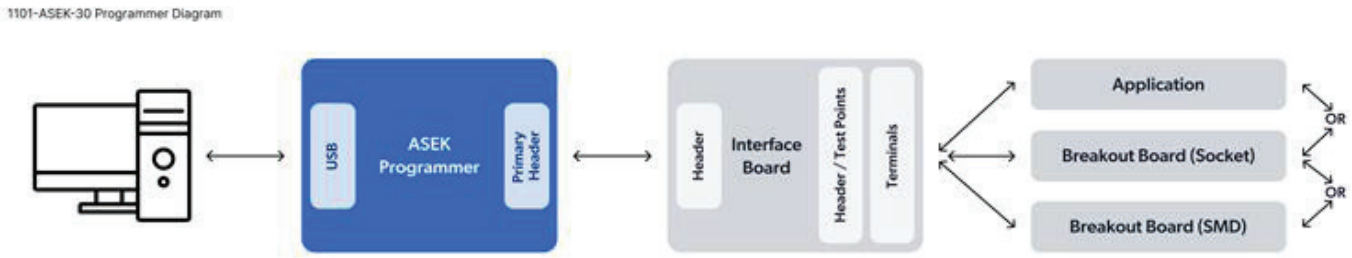

Figure 6: Connection Flow Chart

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GETTING STARTED WITH SOFTWARE

Allegro ASEK software is available for download from the Allegro Software Portal [1]; registration is required.

1. The ASEK-30 is a USB device. It is typically identified by the PC when connected and powered. The USB communication (comm) status LED indicator illuminates to indicate communication between the PC and the ASEK-30. Verify that the device is in communication with the PC as follows:
   A. Open the device manager.
   B. Locate the ASEK30 WINUSB device in the universal serial bus devices.
   C. Open the properties menu of the ASEK30 WINUSB device.
   D. Verify that the device status dialog box indicates that the device is working properly (see Figure 7).
2. Open the ASEK software graphical user interface (GUI), and verify communication between the ASEK-30 and the PC as follows:
   A. In the setup menu, select the communication setup option.
   B. Select the USB port.
   C. Verify communication is shown as active.
   D. Check the communications indicator in the lower right corner of the GUI: A green highlight indicates good communication, as shown in Figure 8.

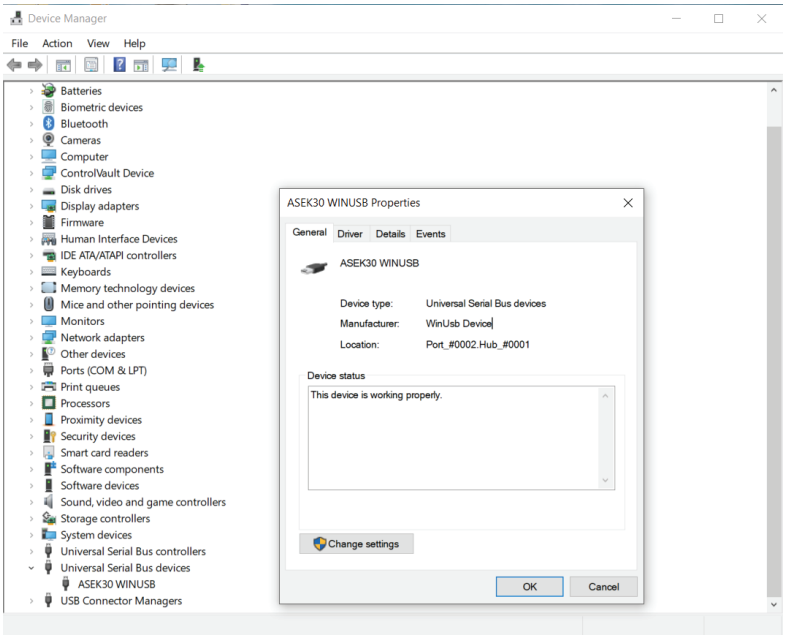
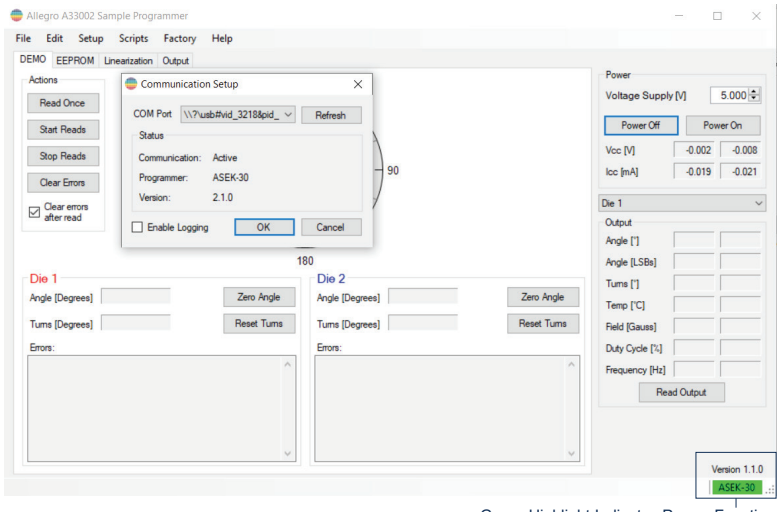


Figure 7: Verify Device is in Communication with PC



Green Highlight Indicates Proper Function

Figure 8: Check PC Communications Indicator in ASEK Software GUI—Green Highlight Indicates Proper Function

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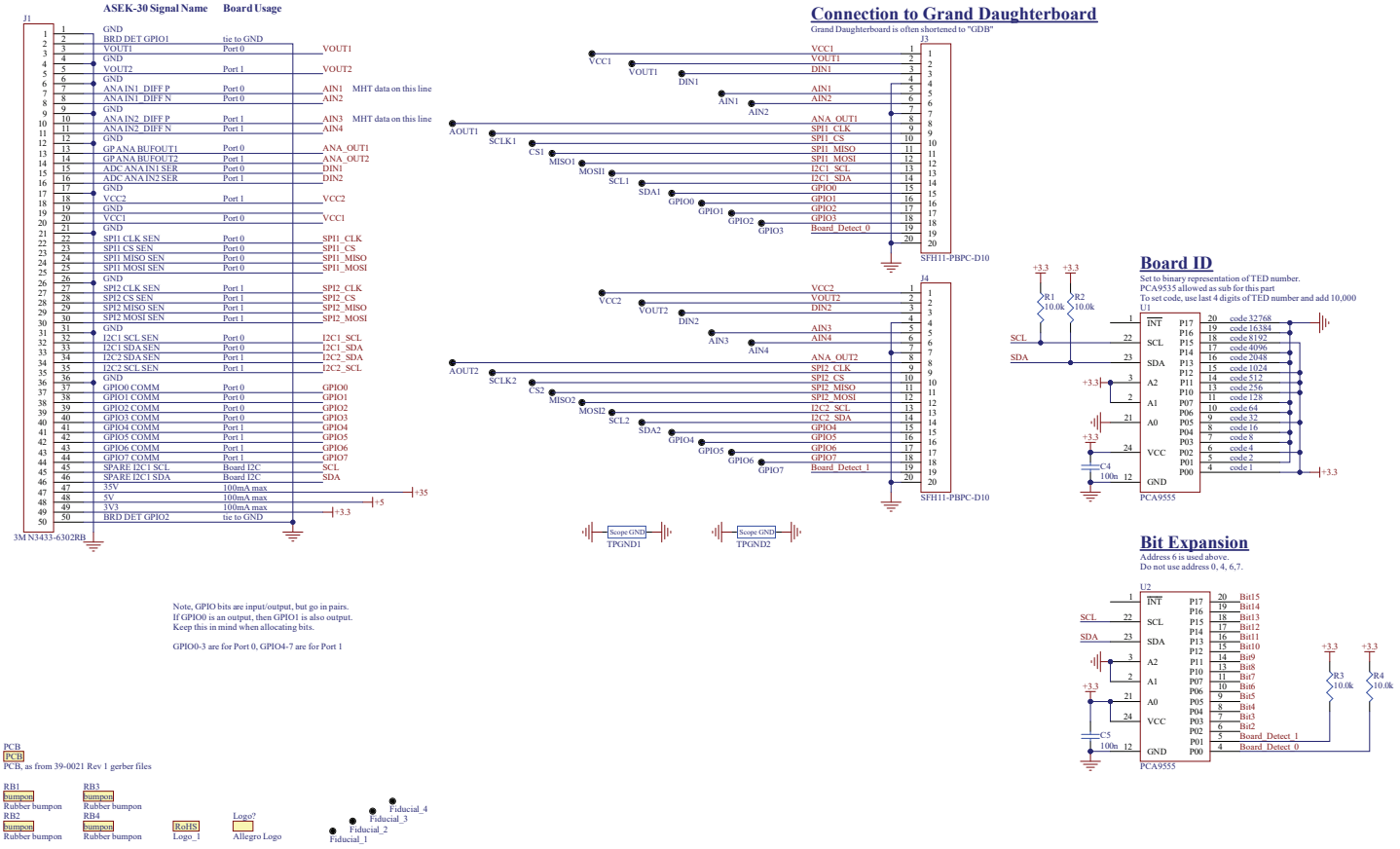
INTERFACE BOARD SCHEMATIC TO ASEK-30-INT-MPS-001 SCHEMATIC



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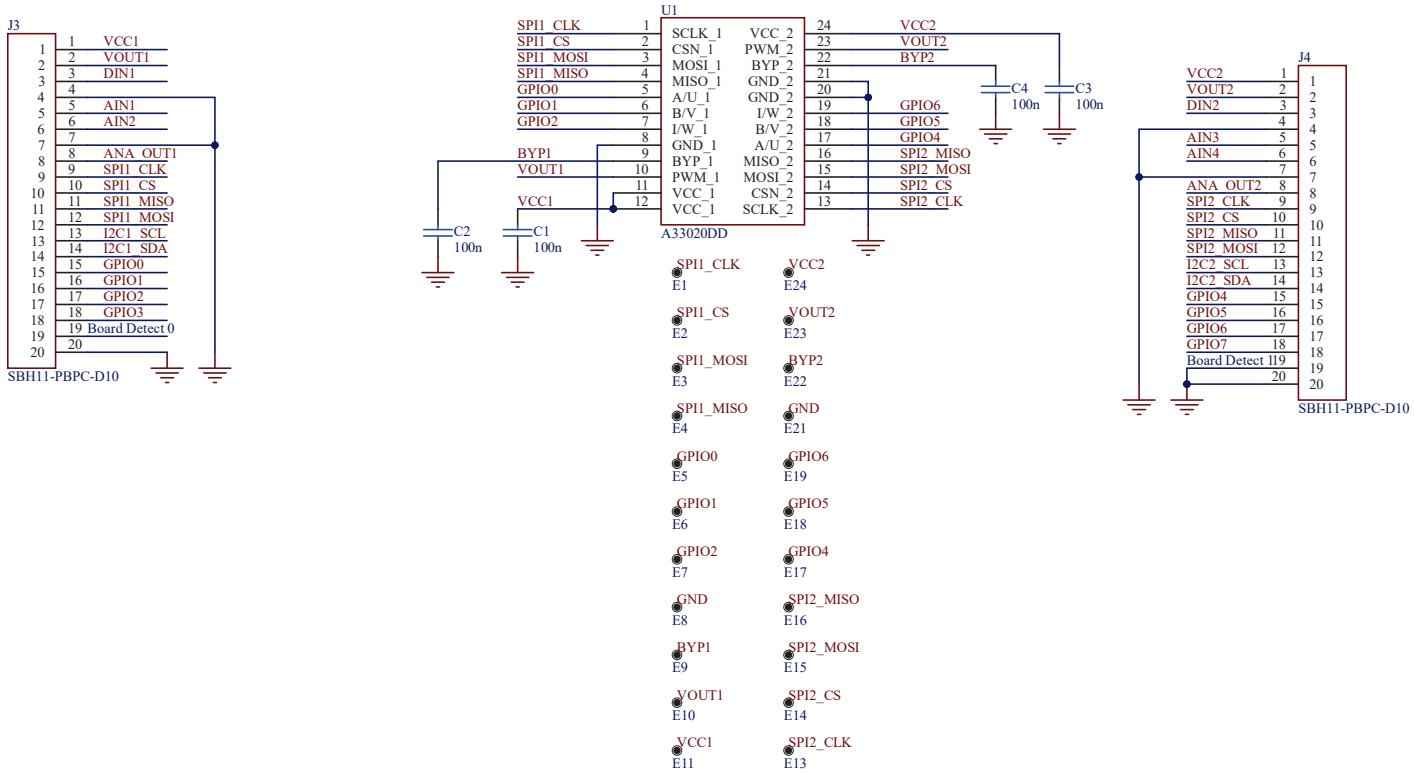
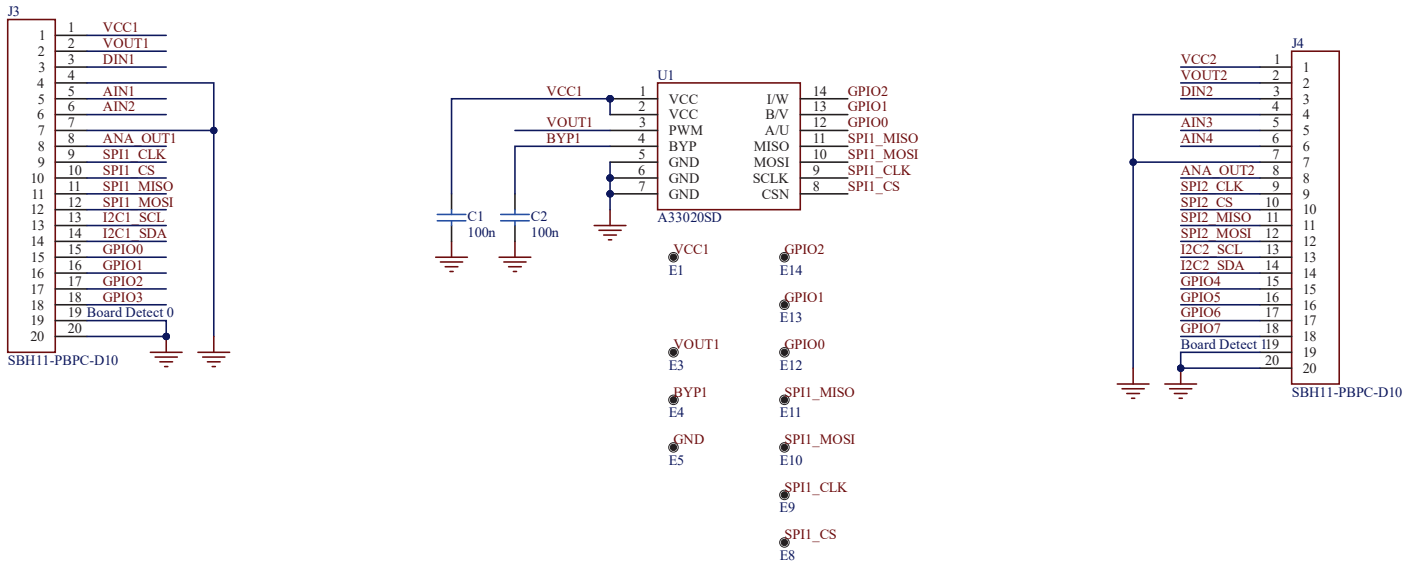
Dual-Die: ASEK-30 A33020/2/3DD Granddaughter Board to ASEK-30-SOC-MPS01DD Schematic



Single-Die: ASEK-30 A33020/2/3SD Granddaughter Board to ASEK-30-SOC-MPS01SD Schematic



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Revision History

Number	Date	Description
–	July 11, 2025	Initial release

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