Application Note

Astra™ Machina Foundation Series MIPI DSI LCM Hardware Connection

Abstract: This application note provides instructions for connecting the Astra™ Machina Foundation Series to a MIPI DSI LCD module using the Synaptics DSI LCM adapter board. It outlines the required hardware and key steps for setting up, ensuring proper integration with SL-Series processors for prototyping and evaluation.

  | PN: 506-001524-01 Rev B

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1. Overview

The Astra™ Machina Foundation Series offers evaluation-ready kits that facilitate quick and straightforward prototyping with the Synaptics SL-Series of embedded Linux® and Android™ processors. Featuring a modular design, these kits include interchangeable core compute modules, a standard I/O board and variety of daughter cards for connectivity, debugging, and various I/O configurations.

1.1. Scope

This document presents a clear connection diagram for the MIPI DSI LCD module, designed for use with the core module that incorporates the SL1680, SL1640, or SL1620 SoC. It specifies how to connect the MIPI DSI to the Haier-specific LCM using the Synaptics-designed DSI LCM adapter board.

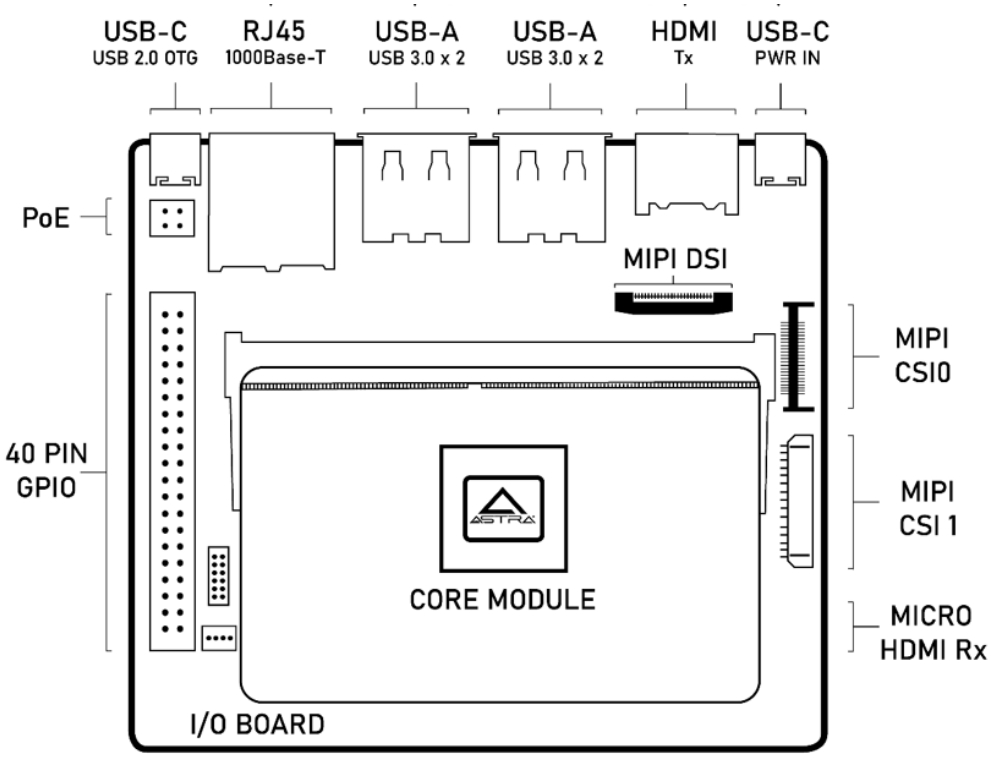

Figure 1. Overview of Astra Machina Foundation Series

1.2. Accessories hardware items needed

[a] Synaptics Astra Machina Foundation Series.

[b] Synaptics MIPI-DSI_LCDM_Adapter for Haier LCM (PN: 730-C01077-01).

[c] 50mm length of 22-pin/0.5mm pitch FFC cable.

[d] Haier 8" 800x1280 LCD module T080ZC424A (PN: 730-001834-01)

[e] USB customized cable with Type A and 2-pin/2.0mm pitch housing receptacle of both ends.

[f] Auxiliary 5V power supply by either popular Mobile USB charging power or device port sourced by host, like the PC, etc.

1.3. Connection block diagram

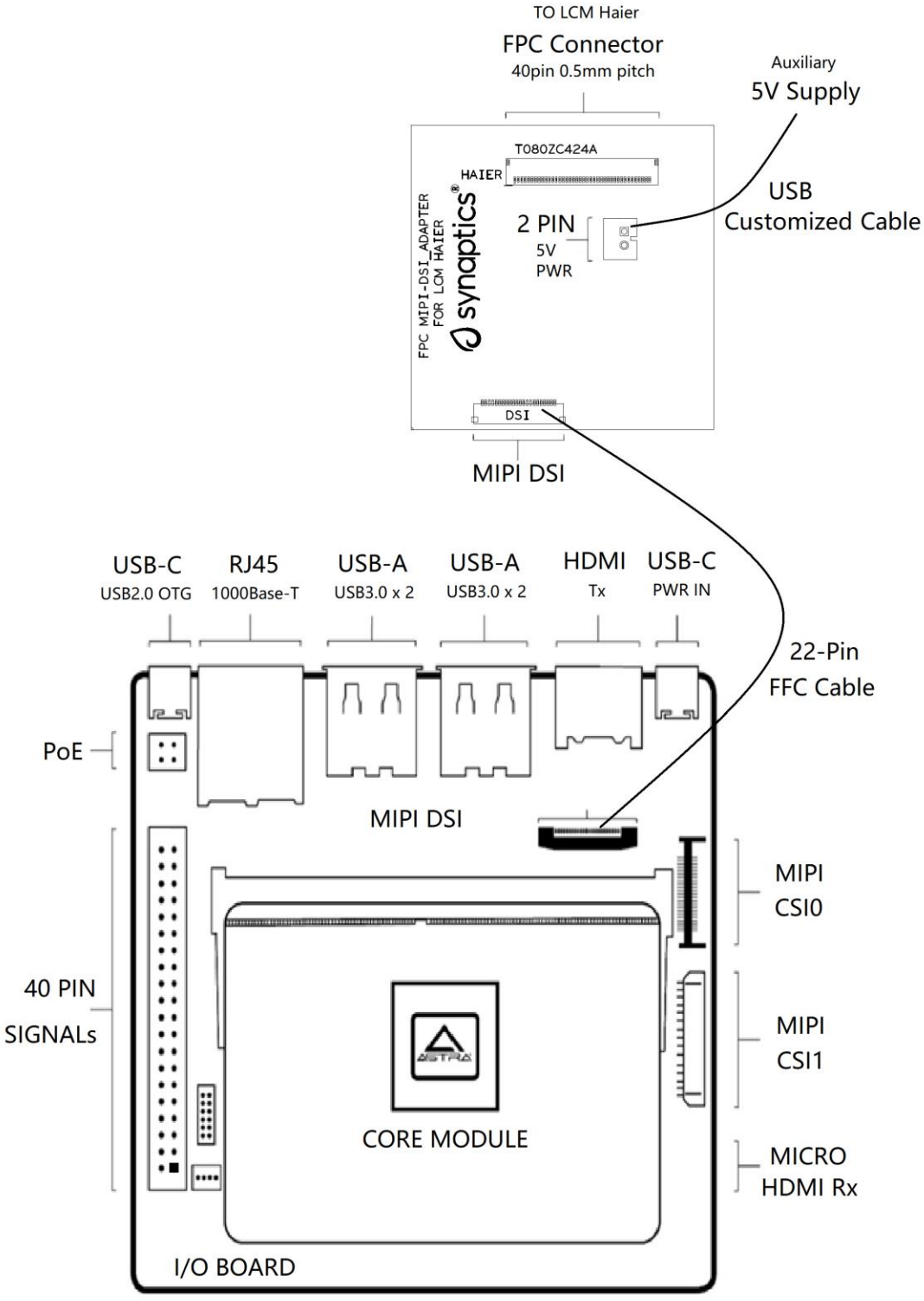

Figure 2. Connection block diagram for MIPI DSI LCM Haier

1.4. Making the connections

[a] Obtain any SL series Core Module that is equipped with the Astra I/O board.

[b] Connect the LCM's integrated FPC cable to the 40-pin/0.5mm pitch FPC connector on the DSI LCM adapter board. Ensure the actuator of the FFC connector on the adapter board is open before inserting the FFC cable. For correct orientation, ensure the stiffener film on the FPC cable faces up, as illustrated in Figure 3 and Figure 4.

[a] Connect a 51mm long FFC cable between the MIPI DSI connector on the Astra I/O board and the FFC connector on the DSI LCM adapter board, as depicted in Figure 2. Ensure the actuator of the FFC connector on both the I/O board and the DSI LCM Adapter is open before plugging in the FFC cable, as illustrated in Figure 3 and Figure 4.

[b] Connect the custom USB cable from Synaptics by inserting the white 2-pin end into the connector on the DSI LCM adapter board and the standard Type A end into any 5V USB charging power supply, as illustrated in Figure 2..

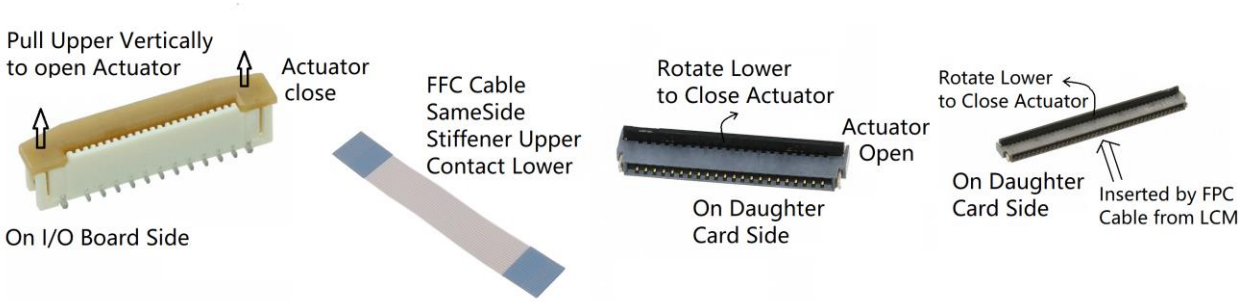

Figure 3. Connector Actuator Status & FFC cable side

Figure 4. Complete connection with DSI LCM Haier adapter

1.5. Basic information of MIPI DSI adapter for LCM Haier

- The Synaptics-designed DSI LCM adapter board features a 4-lane MIPI interface and supports Capacitive Touch Panel (CTP).
- The DSI output can support resolutions up to 800 x 1280 at 60 frames per second.

2. References

- *Astra Machina Foundation Series Quick Start Guide* (PN: 511-001404-01)
- *Astra Machina SL1620 Developer Kit User Guide* (PN: 511-001407-01)
- *Astra Machina SL1640 Developer Kit User Guide* (PN: 511-001405-01)
- *Astra Machina SL1680 Developer Kit User Guide* (PN: 511-001403-01)
- *Synaptics MIPI-DSI_LCDM_Adapter for Haier LCM* (PN: 730-C01077-01)
- *Haier 8" 800x1280 LCD module T080ZC424A* (PN: 730-001834-01)

3. Revision History

Revision	Description
A	Initial release
B	Minor update to latest template and fix trademark typo.

PN: 506-001524-01 Rev B