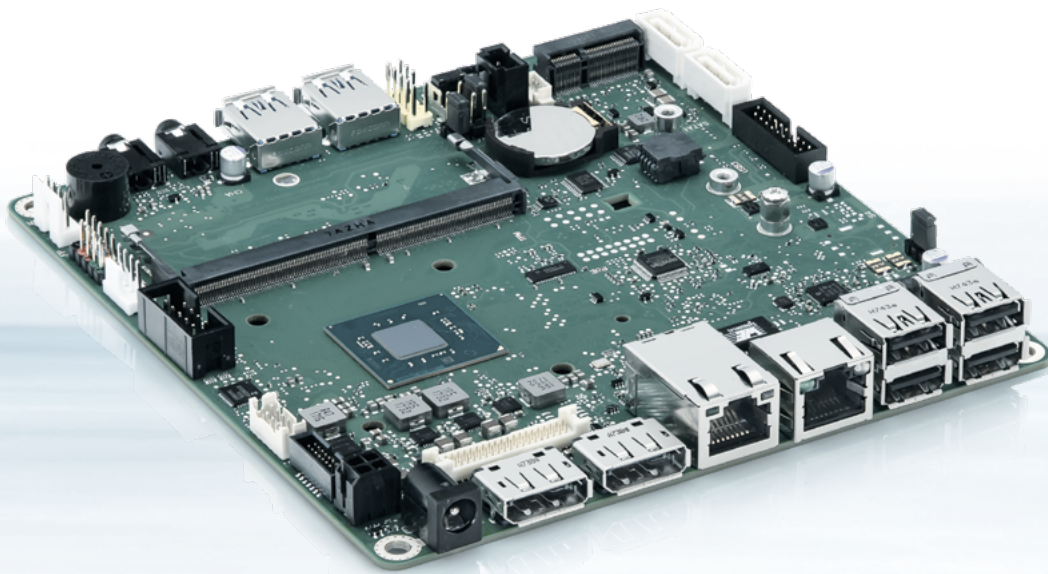


# D3544-S mSTX

## Industrial Series

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### Intel® Celeron® Processor J4005/J4105 & Intel® Pentium® Silver Processor J5005

- ▶ Dual DP V1.2a, LVDS & eDP
- ▶ M.2 SSD & M.2 WLAN Slots onboard
- ▶ HW Watchdog & GPIO
- ▶ Wide Range DC Power Supply (8 V-24 V)
- ▶ Designed for Fanless Operation

POSSIBILITIES START HERE



# D3544-S mSTX

## Industrial Series

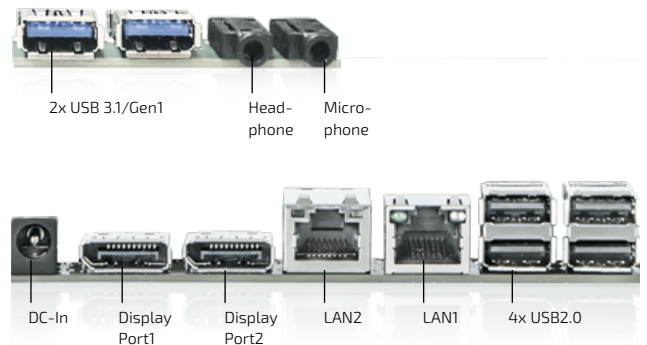
The Industrial Motherboard D3544-S mSTX supports the Intel® Celeron® Processors J4005, J4105 as well as the Intel® Pentium® Processor J5005. Despite the small form factor, the D3544-S mSTX provides best graphic performance with DP connectors for up to

4K displays. It offers highest functionality supporting 24/7 operation mode and an enhanced operating temperature range from 0 °C to 60 °C on low power consumption.

### ▶ PRODUCT HIGHLIGHTS

- ▶ Intel® Celeron® Processor J4005/J4105 & Intel® Pentium® Silver Processor J5005
- ▶ DDR4 2400 SDRAM, max. 16 GByte
- ▶ Intel® UHD Graphics 600/605 (within SoC)
- ▶ 2x DisplayPort V1.2a
- ▶ Dual Channel LVDS (24Bit) and eDP V1.4 onboard
- ▶ 8 Bit GPIO & HD Audio onboard
- ▶ USB 2.0 and USB 3.1 (gen1) onboard
- ▶ 2x SATA III
- ▶ Onboard support for M.2 SSD (SATA/PCIe)
- ▶ Onboard support for M.2 WLAN/Bluetooth module
- ▶ Dual GbE LAN onboard
- ▶ Intel® integrated TPM V2.0 onboard
- ▶ WideRange internal/external DC Input (8 V-24 V)

- ▶ HW Watchdog onboard
- ▶ RS-232/485/422 support onboard



### ▶ TECHNICAL INFORMATION

|                                |                        |   |
|--------------------------------|------------------------|---|
| <b>SYSTEM</b>                  | <b>PROCESSOR</b>       | Intel® Celeron® Processor J4005 (DC @2.0 GHz/2.7 GHz)<br>Intel® Celeron® Processor J4105 (QC @1.5 GHz/2.5 GHz)<br>Intel® Pentium® Silver Processor J5005 (QC @1.5 GHz/2.8 GHz)<br>SoC (System on Chip)  |
|                                | <b>CHIPSET</b>         | Intel® Pentium® Silver Processor J5005 (QC @1.5 GHz/2.8 GHz)  |
|                                | <b>MEMORY</b>          | 1x 50 DIMM Socket (1.2 V), max. 16 GByte,<br>DDR4 2400 SDRAM  |
| <b>VIDEO</b>                   | <b>GRAPHICS</b>        | Integrated Intel® UHD Graphics 600/605  |
| <b>AUDIO</b>                   | <b>AUDIO CODEC</b>     | Realtek ALC671  |
|                                | <b>AUDIO INTERFACE</b> | 5.1-channel, High Definition Audio Codec  |
| <b>NETWORK CONNECTION</b>      | <b>ETHERNET</b>        | 1x Intel® i210 with 10/100/1000MBit/s,<br>1x Realtek RTL8111G with 10/100/1000 MBit/s   |
| <b>PERIPHERAL CONNECTION</b>   | <b>USB</b>             | 4x USB 2.0, 1x USB 2.0 (by header)  |
|                                | <b>SERIAL PORT</b>     | 2x USB 3.1 Gen1, 2x USB 3.1 Gen1 (by header)  |
|                                | <b>OTHER I/Os</b>      | 1x RS232/RS422/RS485 (by header)<br>1x RS232, limited feature set (by header)<br>1x GPIO (by header)  |
| <b>STORAGE &amp; EXPANSION</b> | <b>SATA</b>            | 2x Serial ATA (SATA) III 600 Interface (up to 6GBit/s), NCQ, AHCI;<br>1x M.2 Key B socket (2242/2260/2280), 1x M.2 Key-E (2230)   |
| <b>POWER</b>                   | <b>CONNECTOR</b>       | External/Internal DC-in, 8 V-24 V, 100 W max.   |
|                                | <b>INPUT VOLTAGE</b>   | Onboard SoC and system voltage regulators (high efficiency)   |
| <b>FIRMWARE</b>                | <b>BIOS</b>            | AMI Aptio 5.x (UEFI) BIOS<br>modified and adapted by Fujitsu Technology Solutions; Recovery BIOS,<br>SM-BIOS (DMI), BIOS and CPU Microcode Update, Quick Boot, Logo Boot,<br>Quiet Boot, Plug & Play, Automatic DRAM Configuration, BIOS Support for<br>S.M.A.R.T., Advanced Power Management, ACPI 5.3/5.4, Wake on time from S5.<br>Boot support for M.2 SSD (AHCI / NVME) BIOS integrated HW Diagnostic Tool,<br>Watchdog Support<br>No legacy OS support, no MBR installation (UEFI only due to Intel restrictions)<br>2-Level WD (BIOS Boot WD / OS WD)<br>Integrated<br>Intel® integrated, TPM V2.0 |
|                                | <b>WATCHDOG</b>        |   |
|                                | <b>REAL TIME CLOCK</b> |   |
|                                | <b>TPM</b>             |   |

## ▶ TECHNICAL INFORMATION

|                       |                           |  |
|-----------------------|---------------------------|--|
| <b>SYSTEM CONTROL</b> | <b>FP HEADER SECURITY</b> | 1x Header for Reset button, HDD LED, Power button, Power LED Recovery BIOS, System and BIOS Password, Boot Sequence Control, Serial- / USB- Port Access Protection, Write Protection for Flash BIOS, EraseDisk (BIOS Feature), Intel integrated TPM V2.0 |
| <b>COOLING</b>        | <b>FAN</b>                | 1x PWM-Fan   |
| <b>SOFTWARE</b>       | <b>OS SUPPORT</b>         | MS Windows 10<br>Linux-64  |
| <b>MECHANICAL</b>     | <b>DIMENSIONS (L x W)</b> | Mini-STX: 5.5" x 5.8" (140 x 148 mm)   |
| <b>CERTIFICATION</b>  | <b>EMC &amp; SAFETY</b>   | FCC-B verified<br>cTUVus acc. IEC62368-1 (upon request), CE Class B  |

\*) Long-term driver update support for RS1 (LTSB) and RS2 is not guaranteed by Intel®

## ▶ MOTHERBOARD VERSIONS

|                 | PROCESSOR (SoC)  | GRAPHICS   | MEMORY                                      | GRAPHICS   |
|-----------------|--|--|---|--|
| <b>D3544-S1</b> | Intel® Celeron® J4005 (Dual Core)<br>2.0 GHz / 2.7 GHz*        | Intel® UHD 600<br>12EUs; max. 8 GByte<br>250 MHz / 700 MHz** | DDR4 / 2400<br>one sockets<br>max. 16 GByte | 2x DP V1.2<br>max. 4096 x 2160 @60 Hz  |
| <b>D3544-S2</b> | Intel® Celeron® J4105 (Quad Core)<br>1.5 GHz / 2.5 GHz*        | Intel® UHD 600<br>12EUs; max. 8 GByte<br>250 MHz / 750 MHz** |   | 1x eDP V1.4<br>2 lanes<br>max. 1920 x 1200   |
| <b>D3544-S3</b> | Intel® Pentium® Silver J5005 (Quad Core)<br>1.5 GHz / 2.8 GHz* | Intel® UHD 605<br>18EUs; max. 8 GByte<br>250 MHz / 800 MHz** |   | 1x LVDS 24Bit<br>Dual Channel<br>max. 1920 x 1200<br><br>max. 3x<br>independent display ***) |

\*) CPU Base Frequency / Burst Frequency

\*\*) Graphics Base Frequency / max. Dynamic Frequency

\*\*\*) Following max. display combinations are supported:

2x DisplayPort (DP, external) + 1x LVDS (internal)

2x DisplayPort (DP, external) + 1x embedded DisplayPort (eDP, internal)

Note: Simultaneous use of LVDS and eDP is not supported

## ▶ POWER SUPPLY REQUIREMENTS

| SOURCE             | VOLTAGE RANGE | MIN. PS LOAD | MAX. VOLTAGE TOLERANCE | TYP. MOTHERBOARD INPUT POWER* | MAX. MOTHERBOARD INPUT POWER** |
|--------------------|---------------|--------------|------------------------|-------------------------------|--------------------------------|
| DC-IN (wide range) | 8-24 V        | 0 A          | ± 5 %                  | 5 W - 15 W                    | 100 W                          |

\*) Motherboard incl. Memory and M.2 SATA SSD (MS Windows 10 Idle Mode / Full Load)

\*\*) Motherboard incl. Memory, M.2 SATA SSD, any USB Devices, any LVDS / eDP devices, any SATA devices

## TECHNICAL INFORMATION

| FEATURES            | Chipset<br>DP V1.2a / 2nd DP V1.2a / LVDS / eDP V1.4 / HDMI / DVI / VGA<br>Buzzer / int. Speaker Support (mono)* / 5.1 Multichannel Audio<br>LAN Gbit / 100 Mbit / 10 Mbit / WoL / PXE / M.2 2230 WLAN-BT<br>iAMT-vPro / Intel Standard Manageability / DASH V1.1<br>SATA / M.2 (SATA) / M.2 PCIe (1 lane) / eSATA-Support / RAID / mSATA<br>USB 2.0 / USB 3.1 (gen1) / FireWire™<br>FAN monitored & controlled PSU / CPU / AUX1 / AUX2<br>TEMP monitored CPU / onboard sensors / external sensor   | Intel Gemini Lake SoC<br>+ / + / + / + / - / - / -<br>+ / + / +<br>+ / + / + / + / + / +<br>- / - / -<br>+ / + / + / + / - / -<br>+ / + / -<br>- / + / - / -<br>+ / + / - |
|---------------------|---|---|
| SPECIAL FEATURES    | COM interface support for RS-232 / RS-485 / RS-422<br>Silent Fan / System Guard<br>Recovery BIOS / Desk Update / Multi Boot<br>HDD Password / EraseDisk / TPM V1.2 / TPM V2.0<br>Logo Boot Option<br>BIOS POST- / BIOS Boot- / OS- HW Watchdog<br>Operating Mode 24-7 / 8-5 (hrs per day - days per week)<br>Motherboard operating temperature range (chassis inside)**   | +<br>+ / +<br>+ / + / +<br>+ / + / - / +<br>+<br>+ / + / +<br>+ / -<br>0 °C - 60 °C   |
| INTERNAL CONNECTORS | 50 DIMM Sockets (DDR4 2400)<br>SATA-600 / M.2 SSD*** / M.2 WLAN-BT / mSATA<br>Front Panel Audio (9-Pin, HD Audio) / SP-DIF Out (Digital Audio)<br>USB 2.0 pin header (provides 1 USB channel) / USB Stick socket<br>USB 3.1/gen1 pin header (provides 2 USB channels)****<br>Serial COM1 (RS-232 / -422 / -485; pin header 2mm pitch)*****<br>Serial COM2 (RS-232; specific connector)***** / Parallel Port header<br>LVDS / LVDS Backlight / Embedded DisplayPort<br>FAN PSU / CPU (PWM) / AUX1 (PWM)<br>Intrusion (Case Open) / GPIO (8Bit) / SMBus (Case Temp.)<br>Mono Speaker header / Stereo Speaker header / Digital MIC header<br>Front Panel (Power Switch, Reset Switch, LEDs, Intel 10 pin header)<br>SATA Drive Power Connector (5V/12V) / DC-In Connector 8-24 V (4 pin) | 1<br>2 / 1 / 1 / -<br>1 / 1<br>1 / -<br>1<br>1<br>1 / -<br>1 / 1 / 1<br>- / 1 / -<br>1 / 1 / -<br>1 / - / -<br>1<br>1 / 1   |
| EXTERNAL CONNECTORS | DisplayPort V1.2a / HDMI / DVI / VGA<br>Audio Mic. In / Line in / Line out (or driver configuration)<br>LAN (RJ-45) / PS-2 Keyboard / PS-2 Mouse<br>USB 2.0 / USB 3.1 gen1<br>DC-In connector (external input) 8-24 V @ 5 A max.  | 2 / - / - / -<br>1 / - / 1<br>2 / - / -<br>4 / 2<br>1   |

\*) Mono speaker support; max. 2.2 W @4Ω / 1.3 W @8Ω

\*\*) Forced cooling required for high operating temperature range.

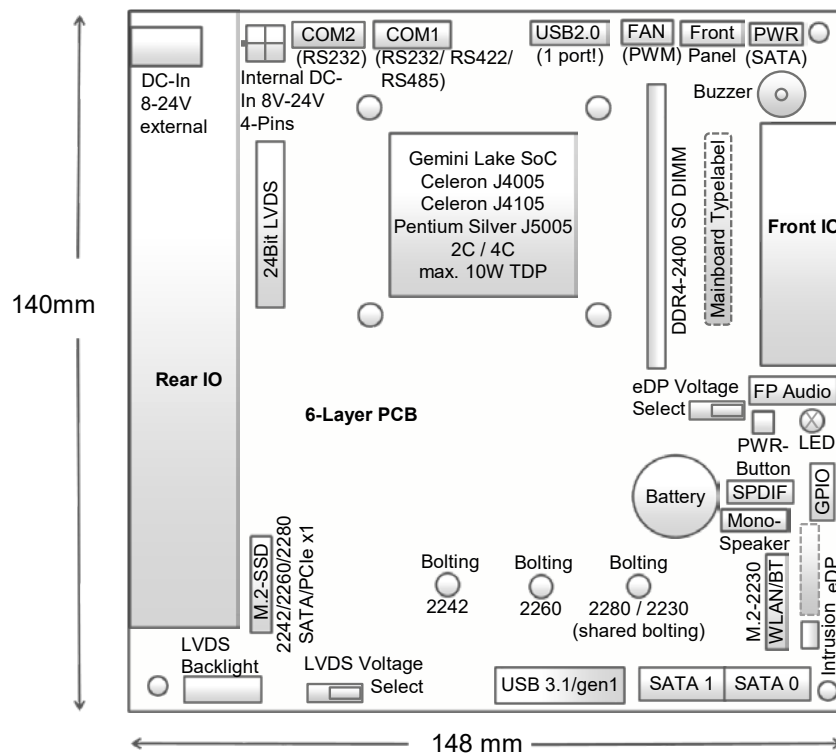
\*\*\*) SATA-based M.2 SSD is shared with SATA port 1; simultaneous use of M.2 2280 module and M.2 2230 module (WLAN/Bluetooth) possible

\*\*\*\*) USB 3 connector includes separate USB 2.0 signal pins (2 channels)

\*\*\*\*\*) RS-232 / RS-422 / RS-485; pin header 2mm pitch. See TechNotes document for details

\*\*\*\*\*) RS-232; reduced feature set (supported signals = Rx/D / Tx/D / RTS / CTS only); specific device driver supported from BIOS R1.6.0; specific connector cable (incl. RS-232 line driver) required.

## CONNECTOR / SOCKET DIAGRAM



## ▶ ORDERING INFORMATION

| ARTICLE                    | PART NO.   | DESCRIPTION  |
|----------------------------|------------|--|
| D3544-S1 mSTX              | F5120-V157 | Intel® Celeron® J4005 Processor (DC/10 W TDP/2.7 GHz)                      |
| D3544-S2 mSTX              | F5120-V158 | Intel® Celeron® J4105 Processor (QC/10 W TDP/2.5 GHz)                      |
| D3544-S3 mSTX              | F5120-V159 | Intel® Pentium® Silver J5005 Processor (QC/10 W/2.8 GHz)                   |
| <b>ACCESSORIES</b>         |            |  |
| CHASSIS KIT                | F5000-J004 | SMARTCASE™ S500  |
| AC ADAPTER                 | F5000-P006 | 19 V/65 W  |
| HEATSINK + BACKPLATE       | F5000-C009 | Active   |
| HEATSINK + BACKPLATE       | F5000-C010 | Fanless  |
| USB-C REAR EXTENSION CABLE | F5000-K008 | USB 3.1/gen1   |
| SERIAL PORT CABLE          | F5000-K007 | COM1   |
| SERIAL PORT CABLE          | F5000-K011 | COM2 active version  |
| WLAN MODULE                | F5000-W003 | Intel® 9260 (M.2 2230)   |
| WLAN MODULE KIT            | F5000-W002 | Intel® 9260 (M.2 2230)<br>incl. Dual WLAN Antenna for SMARTCASE™ S500/S520 |

## ▶ GLOBAL HEADQUARTERS

### Kontron Europe GmbH

Gutenbergstraße 2  
85737 Ismaning, Germany  
Tel.: +49 821 4086-0  
Fax: +49 821 4086-111  
info@kontron.com

[www.kontron.com](http://www.kontron.com)