

Modification Recommended Service Note

Supersedes:
None

E5080B ENA Series Network Analyzer

Serial Numbers: MY59300001-MY59399999, SG59300001-SG59399999

Acoustic sound from PSU

Parts Required:

Refer to [Table 1-1](#)

ADMINISTRATIVE INFORMATION

| | | | | |
|---------------|---|----------------------------|-----------------------------------|---|
| ACTION | <input type="checkbox"/> ON SPECIFIED FAILURE | STANDARDS | | |
| CATEGORY: | <input checked="" type="checkbox"/> AGREEABLE TIME | LABOR: | 1.3 Hours | |
| LOCATION | <input checked="" type="checkbox"/> SERVICE CENTER | SERVICE: | <input type="checkbox"/> RETURN | USED <input checked="" type="checkbox"/> RETURN |
| CATEGORY: | <input type="checkbox"/> ON-SITE (active On-site contract required) | INVENTORY: | <input type="checkbox"/> SCRAP | PARTS: <input type="checkbox"/> SCRAP |
| | <input type="checkbox"/> CHANNEL PARTNERS | | <input type="checkbox"/> SEE TEXT | <input type="checkbox"/> SEE TEXT |
| AVAILABILITY: | PRODUCT'S SUPPORT LIFE | NO CHARGE AVAILABLE UNTIL: | 1-Dec-2024 | |
| | <input checked="" type="checkbox"/> Calibration Required | PRODUCT LINE: | WN | |
| | <input type="checkbox"/> Calibration NOT Required | AUTHOR: | ls | |

ADDITIONAL INFORMATION:

Situation:

E5080B ENA units with serial number range beginning with MY593xxxxx may produce acoustic sound when they are powered on or during operation. It is crucial to note that this sound does not impact performance, quality, reliability, or functionality.

This phenomenon results from the combination of the Gen 2 CPU with the power supply unit. Replacing the CPU with Gen 1 CPU resolves the acoustic sound.

Identifying the acoustic sound which is described in this service note:

1. Boot up E5080B.
2. Launch firmware.
3. Under preset conditions, set the IFBW to 2kHz.
4. If the sound level becomes louder after setting the IFBW frequency, the unit can be used as normal. [This is the typical phenomenon of the acoustic sound from the combination of the Gen2 CPU with the power supply unit]
5. If the sound level doesn't change and E5080B user concerns about the other acoustic sound, contact the local Keysight service center or Keysight contact center team for assistance.

For E5080B users wanting to remove the acoustic sound, contact Keysight service centers for CPU replacement. The service center will convert your E5080B MY593xxxxx CPU from Gen 2 to Gen 1.

Note to Keysight service center: Return the original Gen 2 CPU to factory.

Solution/Action:

Shown is the digital hardware conversion procedure in converting a MY593/ SG593 (Gen2 CPU generation digital hardware) ENA into a MY592/ SG592 (Gen1 CPU generation digital hardware) ENA. Purchase the parts through SLSC (SPO) individually.

Table 1-1

| Item | Gen1 CPU sn MY591/2 | Gen2 CPU sn MY593 | Description | Remarks | Part list section | Additional notes to service center on part |
|------|---------------------|--------------------|---|---|---|--|
| 1 | E5081-87012 | E5080-87043 | Label, Gen1 CPU-PCIO | E5080-87043 IO cut out are slightly shifted up compared to E5080-87019 and E5081-87012 | Outer cover | |
| 2 | E5080-00606 | E5080-00619 | Panel Cover Bottom | E5080-00606 is meant for MY591/2 generation only. It is not compatible with MY593/SG593 and newer. E5080-00619 is fitted with a larger cut-out to suit MY593 CPU PCIe cable. It is a backward compatible replacement to E5080-00606 and will work on MY591/2, SG591/2 generation. | Inner casing | Reuse E5080-00619 |
| 3 | N5240-80040 | - | Label, key main | E5081-87011 is fitted with updated USB logo. For MY591/2, SG591/2 s/n prefix originally fitted with N5240-80040, perform the front label repair using E5081-87011. | Front assembly | Reuse E5081-87011 |
| | E5081-87011 | E5081-87011 | | For MY593,SG593 s/n prefix, use E5081-87011 only. | | |
| 4 | E5080-61609 | E5080-61617 | Cable Assembly 12V Power | E5080-61609 and E5080-61617 are not backward compatible. E5080-61609 and E5080-61617 are not backward compatible. Gen2 CPU (MY593) motherboard 12V power supply uses a different connector compared to Gen1 CPU (MY591/2) E5080-61609 and E5080-61617 are not backward compatible. | Distribution board Digital chassis Backplane assembly | |
| 5 | E5080-68100 | E5080-68120 | ENA rear IO panel (digital motherboard). | The IO panel is part of the CPU assembly. No standalone part for IO panel is made available. | Digital chassis | Included in #6 |
| 6 | E5080-68100 | E5080-68120 | i5 CPU board, tested | Main CPU module | CPU Assembly | |
| 7 | 0515-0430 (Qty.4) | 0515-0430 (Qty. 6) | Screw-Machine W/Crest-Cup-Con-Washer Pan-HD Torx-T10 M3X0.5 6mm-LG SST-300 Passivated | Standoffs (item 3) are not required for MY593 CPU motherboard. Replaced with screws. | CPU Assembly | |
| 8 | 0380-1897 (Qty.2) | Not applicable. | Standoff-HEX Male-Female M3X0.5 6mm-A/F 13mm-LG Br ZN-CCC | Not required for MY593. | CPU Assembly | |
| 9 | E5080-01205 | Not applicable. | Bracket DIMM Holder | Not required for MY593. | CPU Assembly | |
| 10 | 0515-0430 (Qty.2) | Not applicable. | Screw-Machine W/Crest-Cup-Con-Washer Pan-HD Torx-T10 M3X0.5 6mm-LG SST-300 Passivated | For MY593,SG593, the two screws are included in item 7. | CPU Assembly | |
| 11 | 1400-1051 (Qty.2) | Not applicable. | Saddle-Wire | Not required for MY593 since there is no DIMM holder bracket. | CPU Assembly | |
| 12 | E5080-01204 | Not applicable. | Bracket DIMM Pusher | Not required for MY593 since there is no DIMM holder bracket. | CPU Assembly | |
| 13 | 0515-0430 (Qty.2) | Not applicable. | Screw-Machine W/Crest-Cup-Con-Washer Pan-HD Torx-T10 M3X0.5 6mm-LG SST-300 Passivated | Not required for MY593 since there is no DIMM holder bracket. | CPU Assembly | |
| 14 | E5080-82203 | E5080-82205 | SSD Installed, Win10 (1809) | | Removable SSD assembly | |
| 15 | E5080-87252 | E5080-87253 | SSD label | Part of E5080-82203/ E5080-82205 | Removable SSD assembly | Included in #14 |

The above listed part numbers are the unique hardware of Gen1 CPU (MY591/2) and Gen2 CPU (MY593) generations. The other parts that are not explicitly listed in table 1-1 are common and reusable.

In summary,
Reused items.

- Everything except listed below.

New items/ Items to be replaced

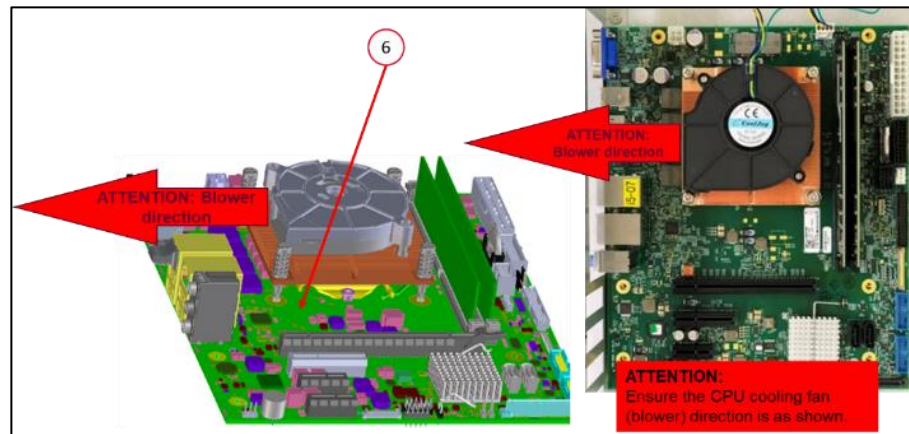
- CPU module assembly (digital motherboard)
- PCIO label
- Power supply cable assembly
- Solid state drive.

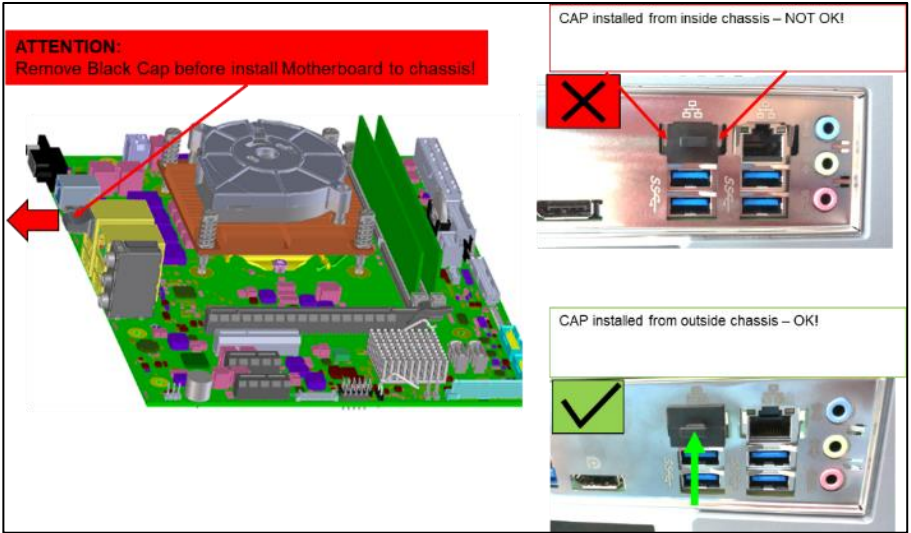
- I. Hardware upgrade
 - 1. Dis-assembly procedure
 - 2. Assembly procedure
- II. Power on unit
- III. Firmware update
- IV. License files check
- V. Restoration of syscalls (Adjustment)
- VI. Calibration of touch screen
- VII. Execute diagnostic test (Operator check)
- VIII. Performance tests.

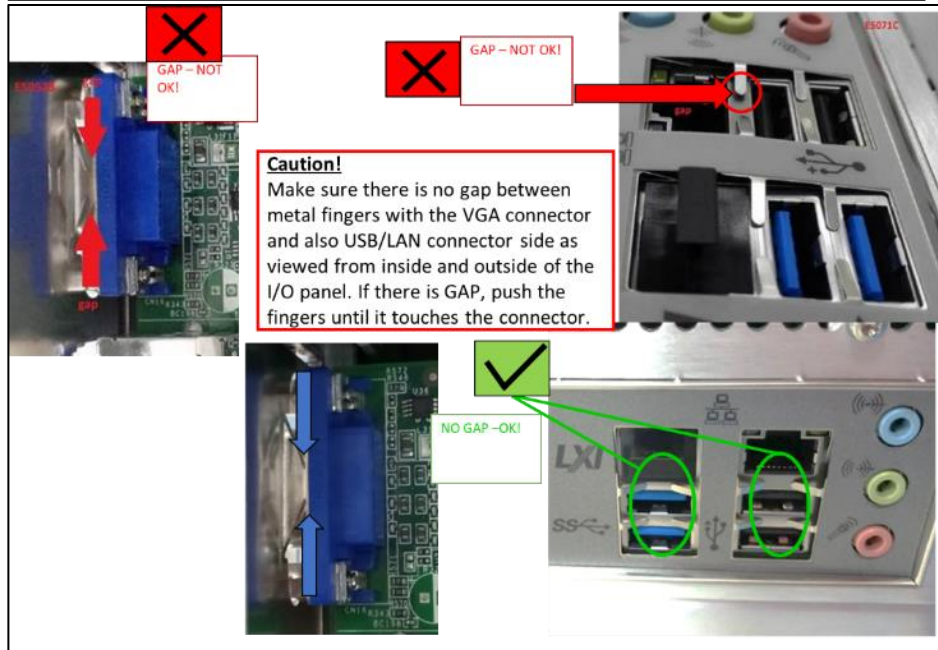
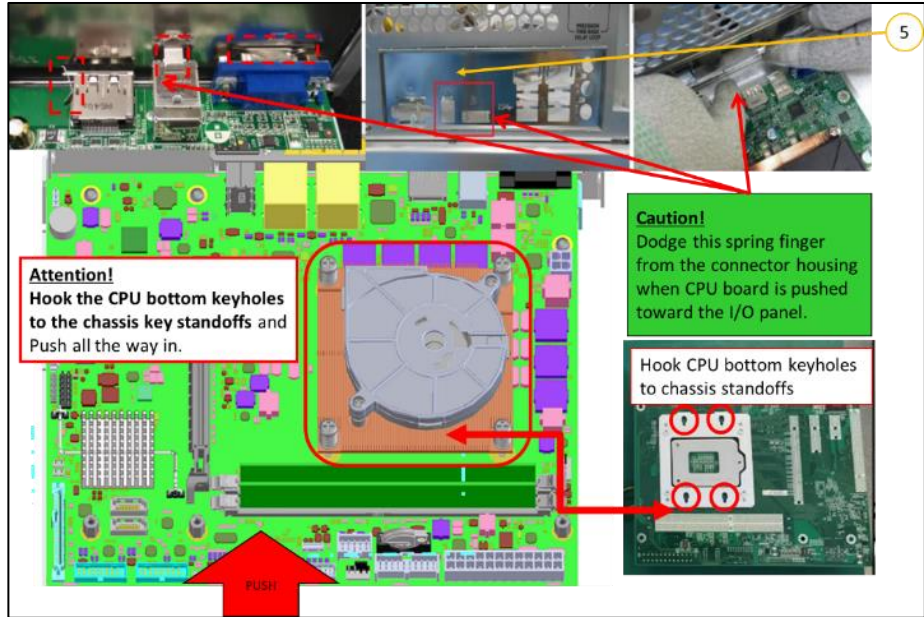
- I. Hardware upgrade
 - 1. Dis-assembly procedure
 - Refer to the E5080B Dis-assembly procedure reference in SIP(Keysight Intranet access).
<http://emg.communications.keysight.com/SIP/ProductInformation.aspx?strSearch=E5080B>

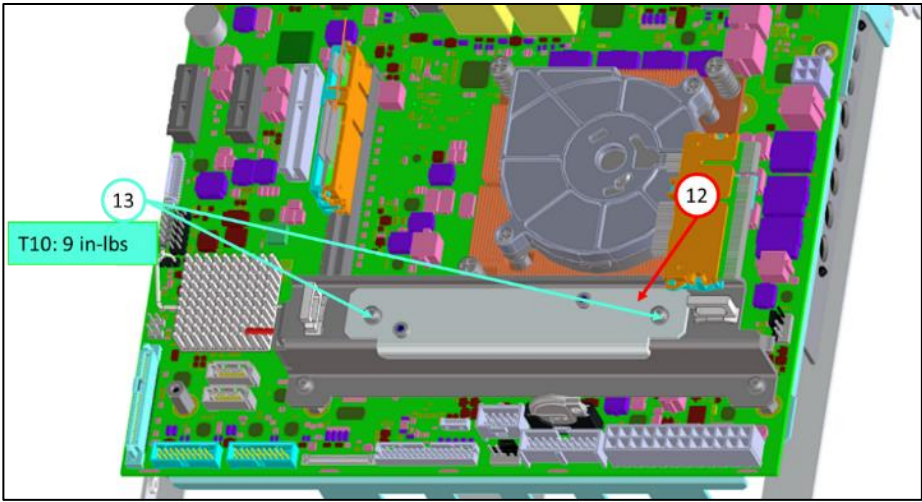
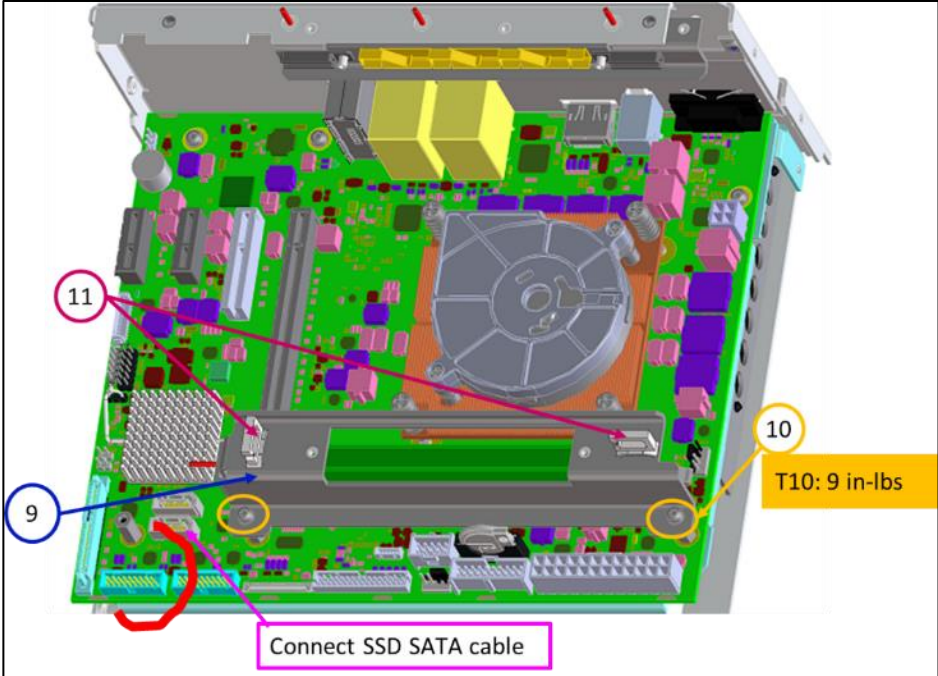
1.Remove SSD, outer cover, bottom cover and plate, rear panel Bias-T panel, rear panel AUX assembly, CPU module.

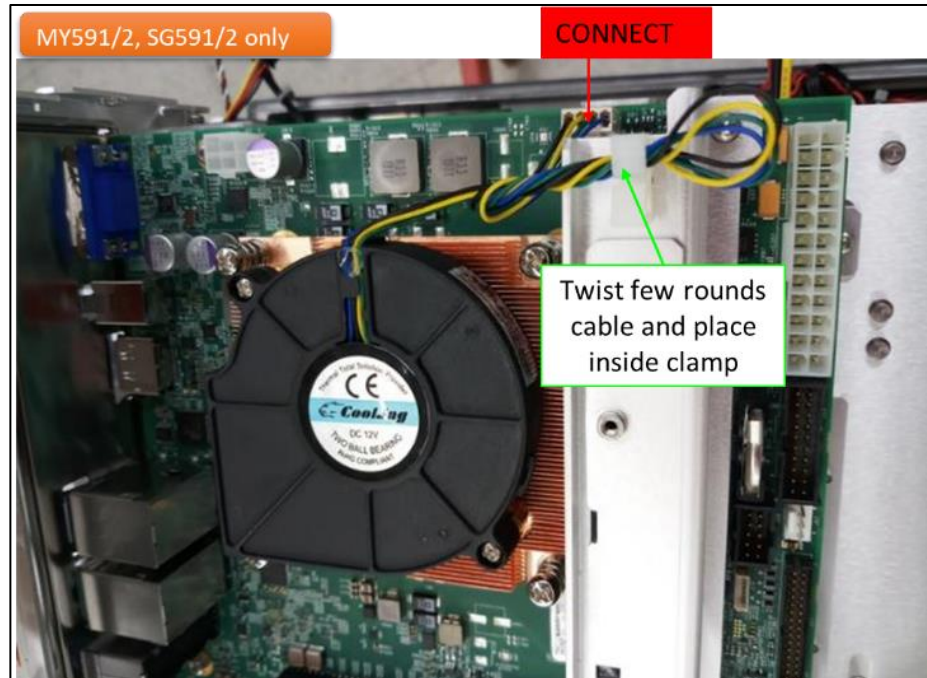
- 2. Assembly procedure
 - 1.CPU module installation.
 - 1.1 Shown is the CPU module installation procedure.



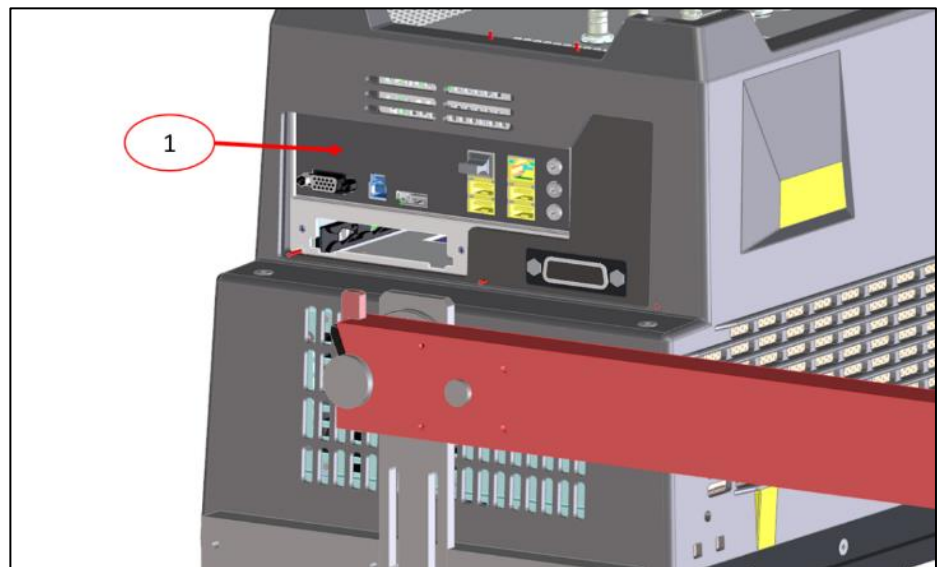






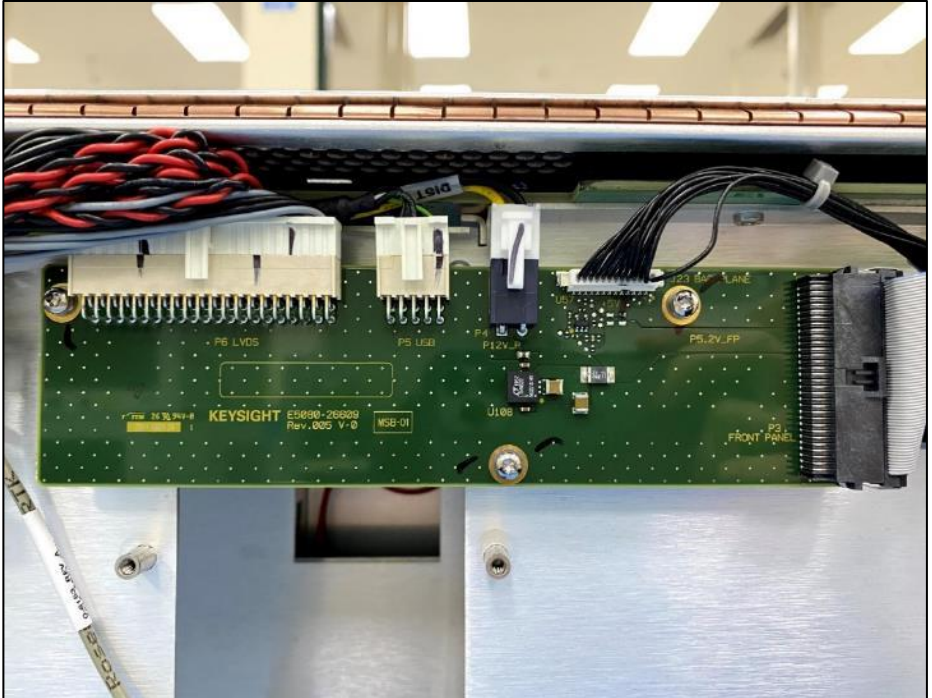
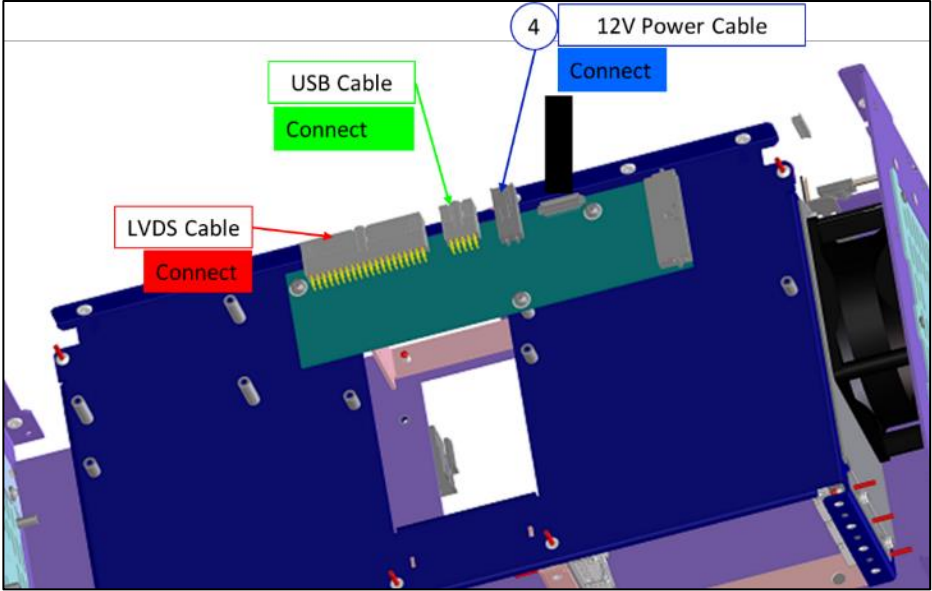
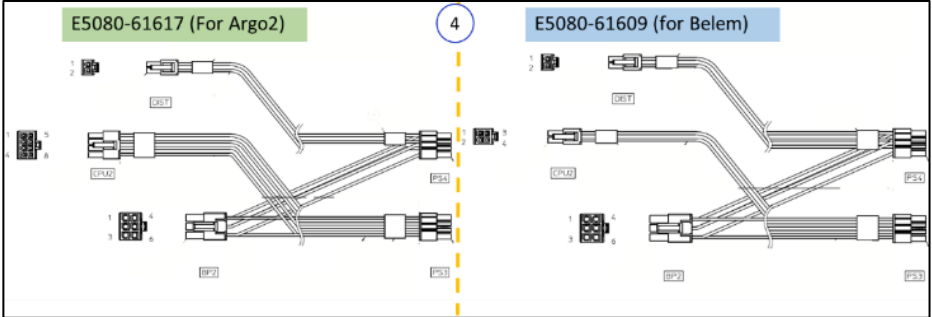


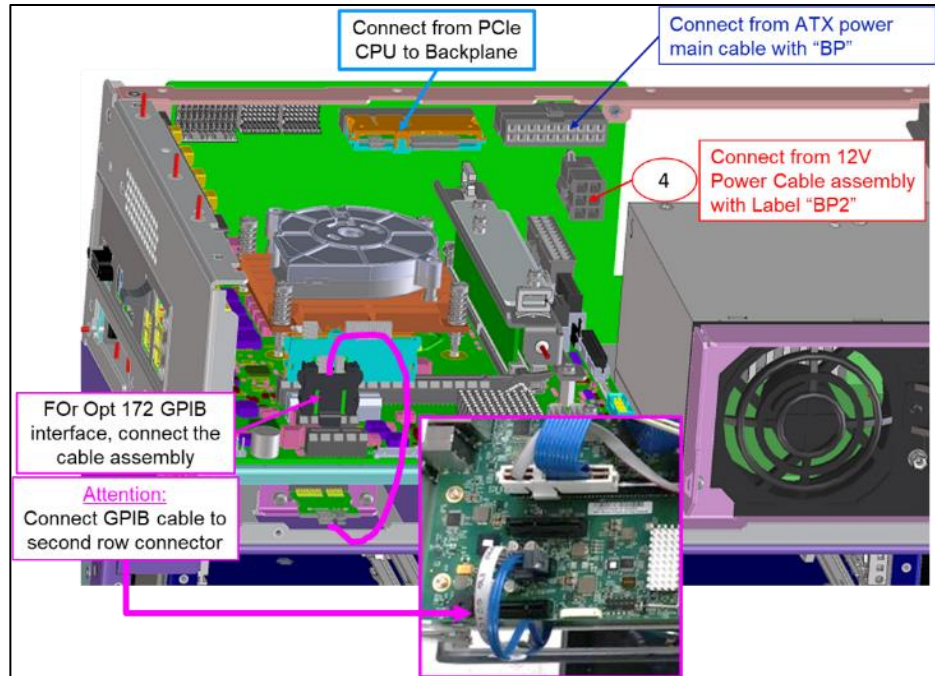
1.2 After the CPU module is installed, remember to replace the PCIO overlay as shown. The PCIO overlay cut-outs (X-Y position) for Gen2 CPU (MY593) are slightly shifted to fit Gen2 CPU and it is not 100% compatible with Gen1 CPU generation CPU. Replacement with Gen1 CPU PCIO overlay is required.



2. Power supply unit cable assembly replacement

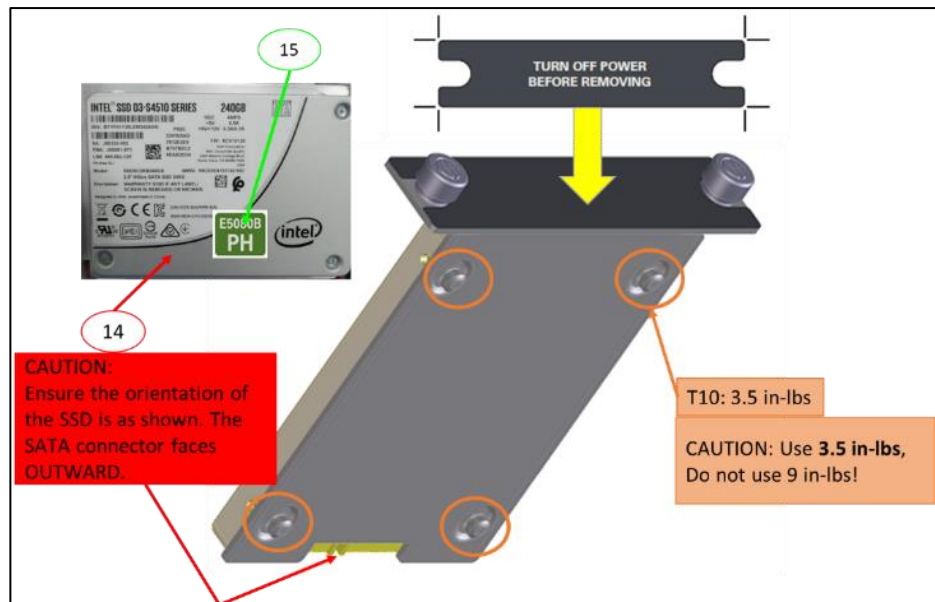
2.1 Shown is the comparison of the 12V power supply cable assembly. Perform the replacement as shown using E5080-61609.





3. Solid State Drive replacement

3.1 Replace the Gen2 CPU solid state drive (SSD) with SSD meant for Gen1 CPU. Reuse the removable SSD bracket and tray.

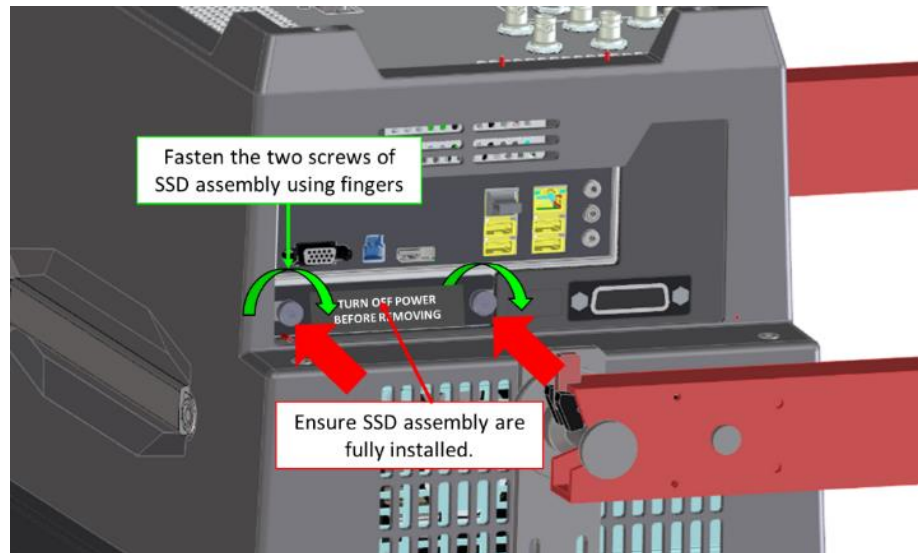


4. Restoration of hardware

4.1 Reinstall rear panel AUX assembly, Bias-T panel, bottom cover and plate, outer bucket cover accordingly to the reversal of disassembly

procedure. Ensure every single cable, connectors and screws are properly installed and fastened.

5. Installation of removable solid state drive

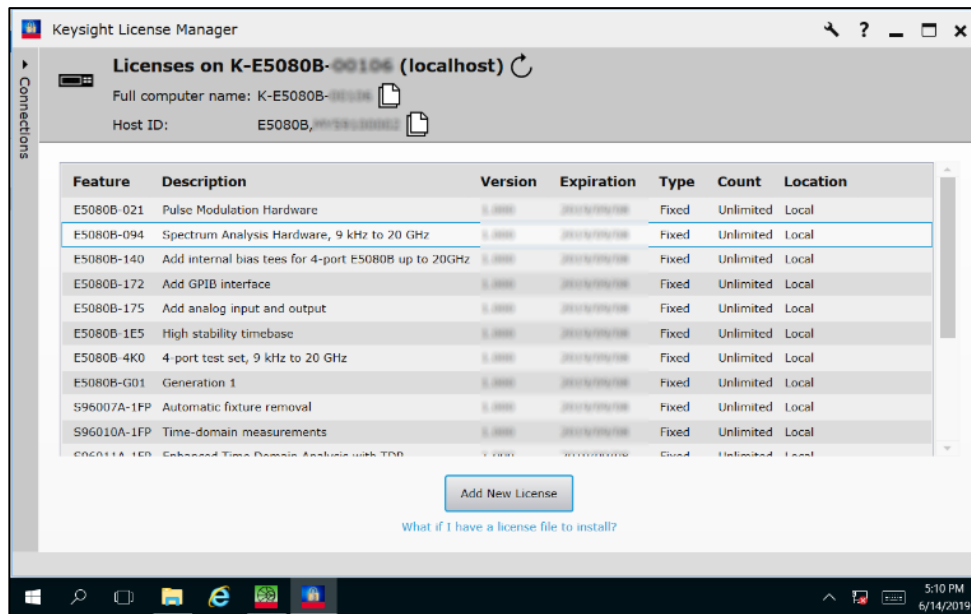


- II. Power on unit
 1. Power on the E5080B. Ensures E5080B loads into Windows correctly. Confirm on Windows time and date.
- III. Firmware update
 1. Check for the latest firmware from Keysight.com product support page.
 2. It is highly recommended to have the latest FW installed in the event where newer FW releases are made available online.
- IV. License files update
 1. Ensure that the E5080B serial number and option information are correct.

Keysight Software Manager (KSM)

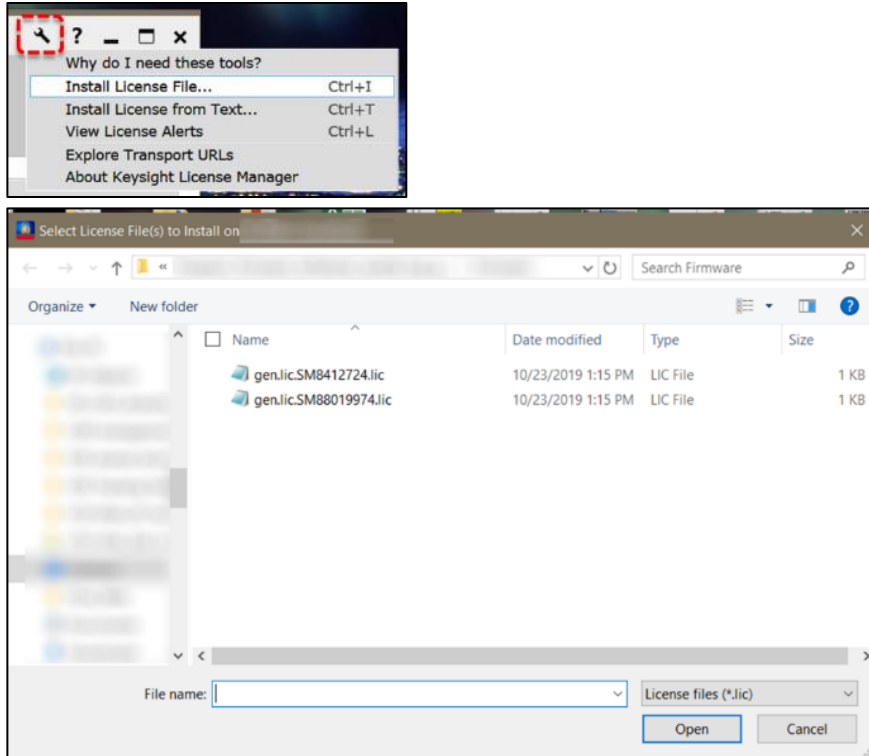
<http://ksmwebp.cos.is.keysight.com/asm/internal/ui/Authenticate.aspx>

2. In E5080B, launch Keysight License Manager Utility.
 <Start> → Search for “Keysight License Manager”. Shown is the sample KLM window for an opt-4K0 E5080B.

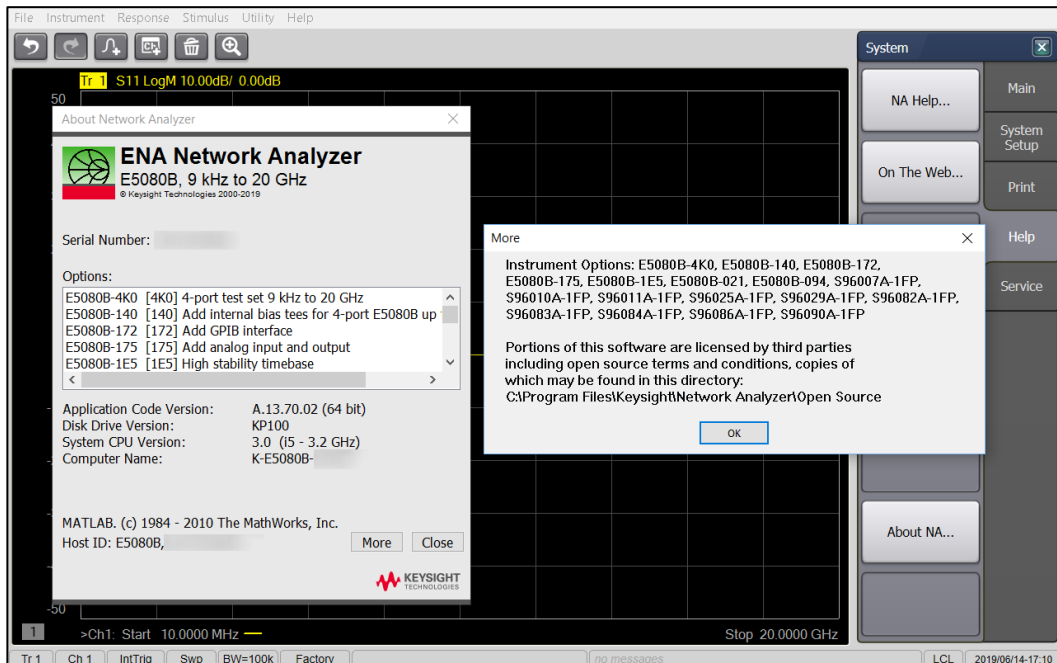


3. (Backup): In case there are missing licenses
 To add new license file, click on the wrench icon, select “Install License File”. A Window will be prompted. Select the intended license file. Click “Open”.

Alternatively, if user copies the license files to USB flash drive, the E5080B would attempt to search the USB flash drive for the appropriate license file (if any) and automatically install the license(s) if they match with the unit serial number.



4. Reboot the E5080B firmware and Navigate to <System>→Help →About NA to ensure the new option is correctly recognized. Shown is the example of E5080B Firmware Info.



V. Restoration of syscalls (Adjustment)

1. Perform **ALL Adjustments** with the latest E5080B Gondor FSE Adjustment Software.

Follow the step-by-step procedure as instructed by Adjustment Software.

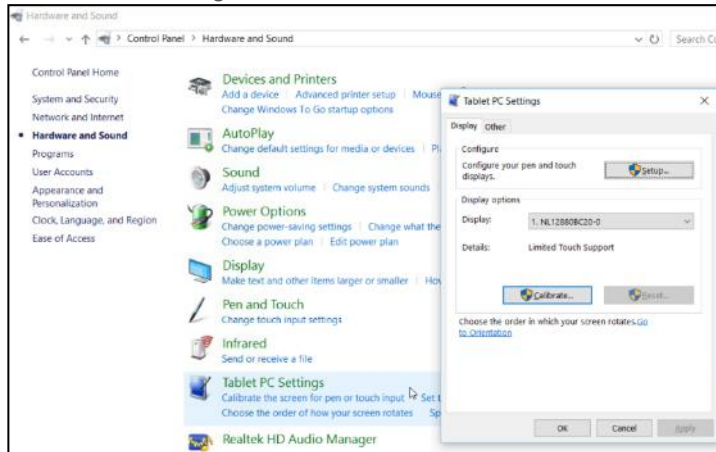
VI. Calibration of the touch screen

Note: This step is optional.

The default Windows touch screen calibration setting will be accurate. Only perform if user would like to customize the touch screen to their requirement.

Refer to the procedure described below to calibrate the touch-screen.

1. In Windows operating system, navigate to Control Panel → Hardware and Sound → Tablet PC Settings. Click “Calibrate”.



2. Windows UAC (User Account control) will be prompted. Press “Yes”.



3. Touch the + crosshair according to the sequence on screen.



VII. Execute diagnostic test (Operator check)

1. In E5080B firmware, navigate to <System> →Service →Operator's Check.
2. User will be prompted with dialog box, click "OK" to proceed with the operator check.
3. At the end of the test, for a good unit, PASS will be displayed. Keep an eye for anomaly or failure message.

VIII. Performance tests

1. Execute ALL Tests with the latest E5080B Gondor ETMS performance verification program. Ensure the E5080B passes full performance test and well within specification. Refer to the on-screen instructions of the performance verification software for step-by-step procedure.

~ End~

Appendix

| VNA module spark plug adapter part identification | | | |
|--|--------------------|------------------|---|
| Installed in | Spark plug adapter | P/N | Description |
| PXIe & USB-streamlined VNA M980xA, P500xA, P502xA (Up to 20GHz) | 3.5 mm | 1250-4329 | Adapter-Coaxial Straight Spark-Plug Female-APC-3.5 50-Ohm 26.5GHz |
| Benchtop VNA E5080B (Up to 20GHz) | 3.5 mm | 1250-3893 | Adapter-Coaxial straight Plug APC 3.5 50Ohm 26.5GHz |
| PXIe, USB-Streamlined & Benchtop VNA (Above 20GHz) | 3.5 mm | 1250-4078 | Adapter-Coaxial Straight Spark-Plug Female-APC-3.5 50-Ohm 26.5GHz |
| | 2.4 mm | 1250-4323 | Adapter-Coaxial Straight Spark-Plug Jack-2.4mm 50-Ohm 50GHz-MAX |
| | 1.85 mm | 1250-4434 | Adapter-Coaxial Straight Spark-Plug Jack-1.85mm 50-Ohm 65GHz-MAX |
| All variants | Nut | 1250-3895 | Connector-RF Nut-Spanner 0.32-in-OD 0.07-in-THK Brass Au-plated |

| Opt | Freq Range | Bias Tees | Connector Type | 20 GHz | | | 50 GHz | | |
|-----|------------|---------------|-----------------|--------------|--------------|--------------|-----------|--------------|--------------|
| | | | | port source | | 2 | | 4 | |
| | | | | 1 | 1 | 2 | 1 | 1 | 2 |
| | | | | Diva20 2p x1 | Diva20 4p x1 | Diva20 2p x2 | Diva50 2p | Diva50 2p x2 | Diva50 2p x2 |
| | | | | | | | | | |
| x4x | 4.5 GHz | available | Type-N | ✓ | ✓ | ✓ | NA | NA | NA |
| x6x | 6.5 GHz | available | Type-N | ✓ | ✓ | ✓ | NA | NA | NA |
| x9x | 9 GHz | available | Type-N | ✓ | ✓ | ✓ | NA | NA | NA |
| xDx | 14 GHz | available | 3.5 mm (Type-N) | ✓ | ✓ | ✓ | NA | NA | NA |
| xHx | 18 GHz | available | 3.5 mm (Type-N) | ✓ | ✓ | ✓ | NA | NA | NA |
| xKx | 20 GHz | available | 3.5 mm | ✓ | ✓ | ✓ | NA | NA | NA |
| xLx | 26.5 GHz | not available | 3.5 mm | NA | NA | NA | ✓ | ✓ | ✓ |
| xMx | 32 GHz | not available | 2.4 mm | NA | NA | NA | ✓ | ✓ | ✓ |
| xNx | 44 GHz | not available | 2.4 mm | NA | NA | NA | ✓ | ✓ | ✓ |
| xPx | 53 GHz | not available | 1.85 mm | NA | NA | NA | ✓ | ✓ | ✓ |

Revision History:

| Date | Service Note Revision | Author | Reason for Change |
|-------------|-----------------------|--------|-------------------|
| 07-Dec-2023 | E5080B-23 | ls | As Published |
| | | | |
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| | | | |