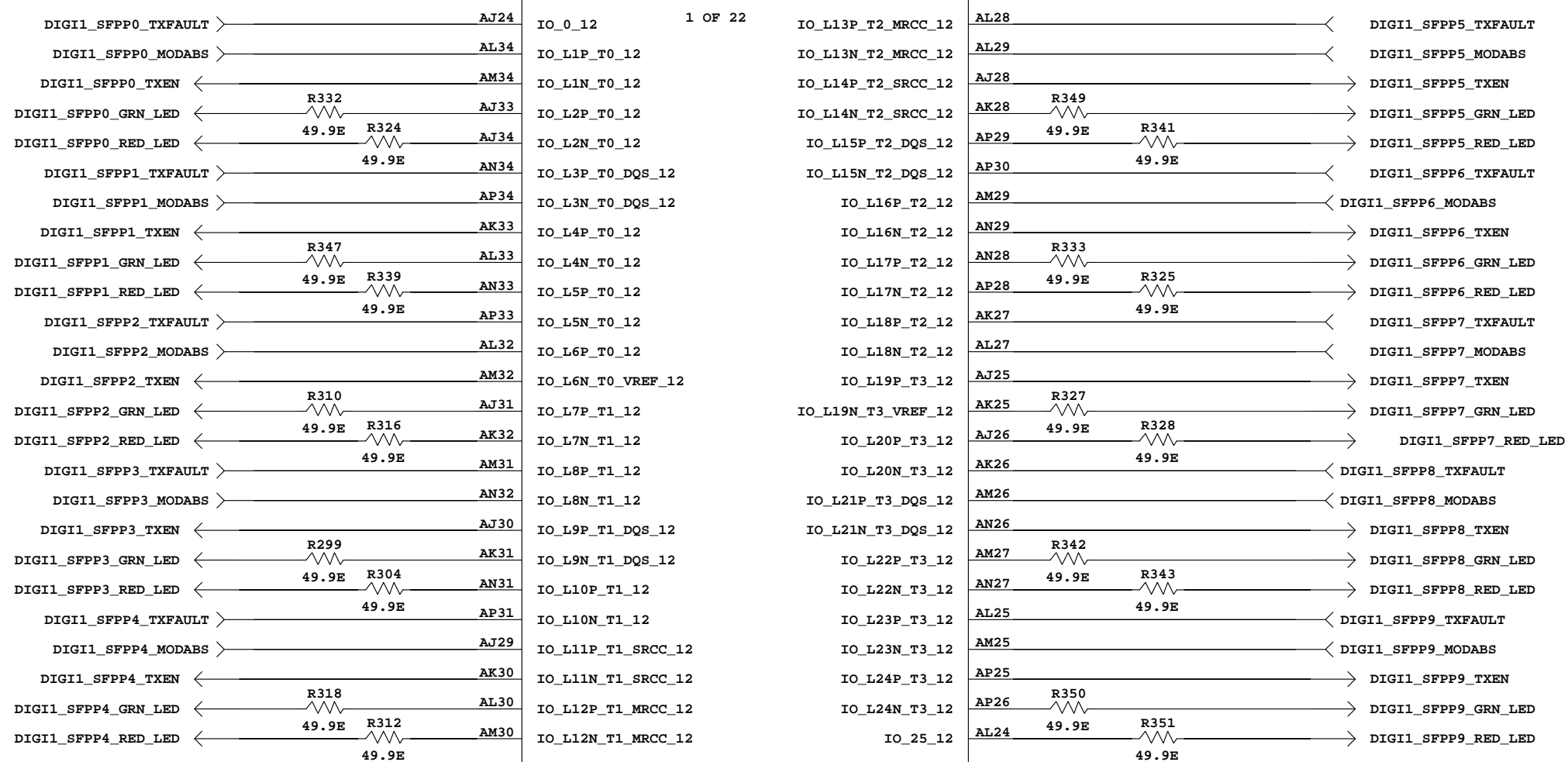

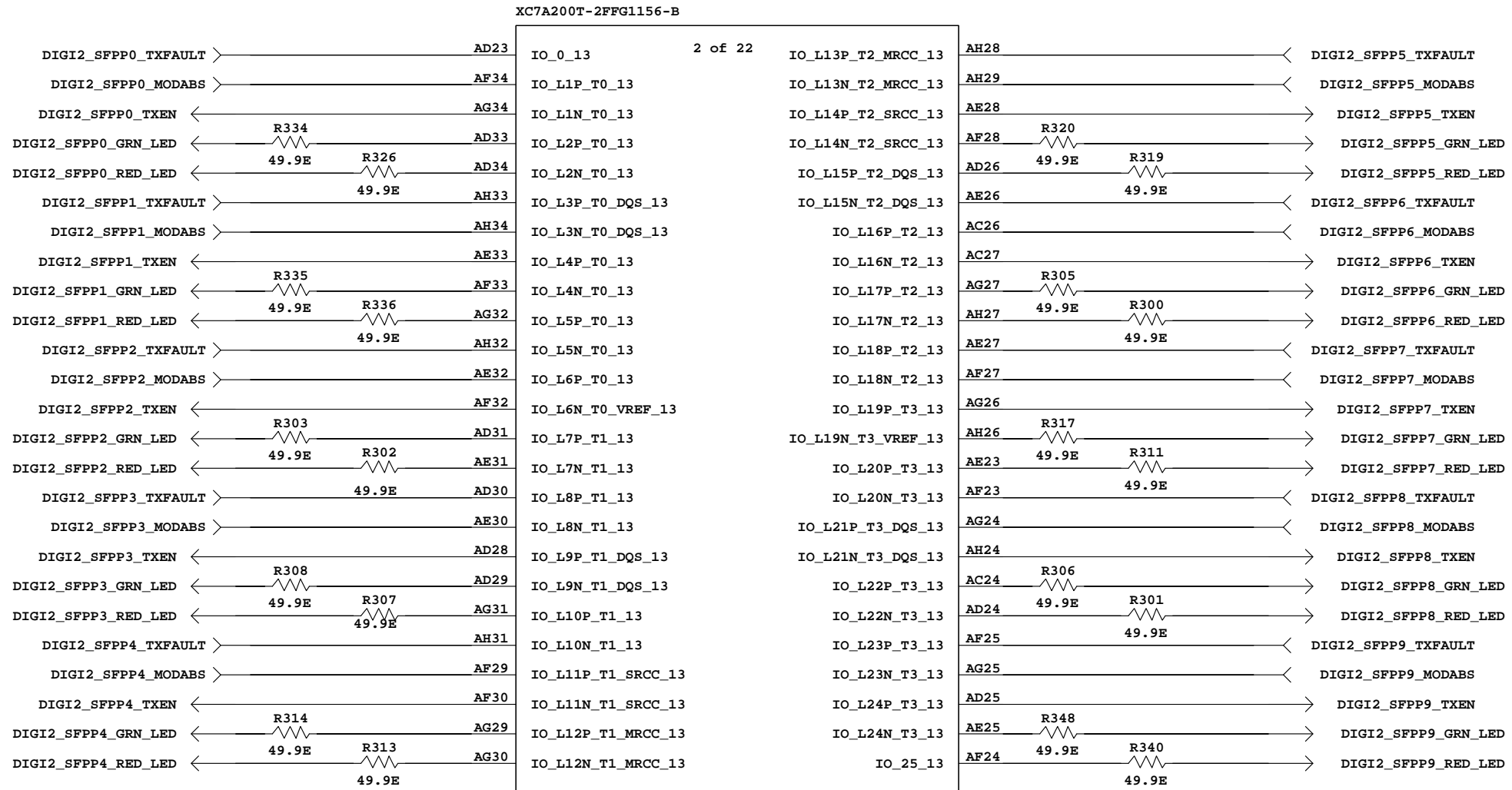


XC7A200T-2FFG1156C-A




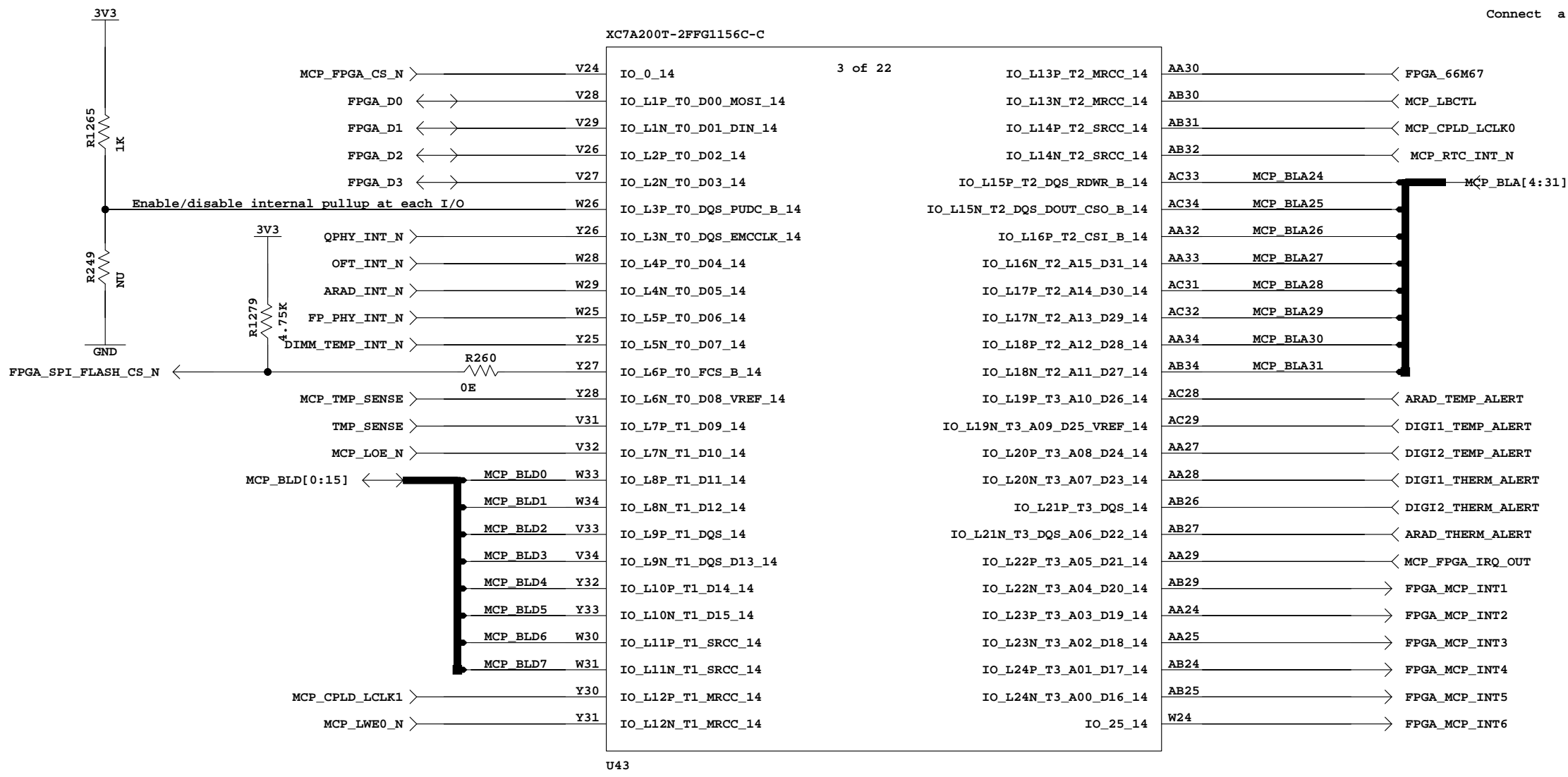
U43

|   |  |                   |      |
|---|--|-------------------|------|
| CHKD:   |  | APPD:             |      |
| CARD NAME: MULTI SERVICE LINE CARD  |  | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS  |  | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)  |  |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI |  | DATE:15-09-2017   |      |
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U43

|  |  |                   |      |
|--|--|-------------------|------|
| CHKD:  |  | APPD:             |      |
| CARD NAME: MULTI SERVICE LINE CARD   |  | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS   |  | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |  |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT |  | DATE:15-09-2017   |      |
|  |  | SHEET: 200 OF 227 |      |

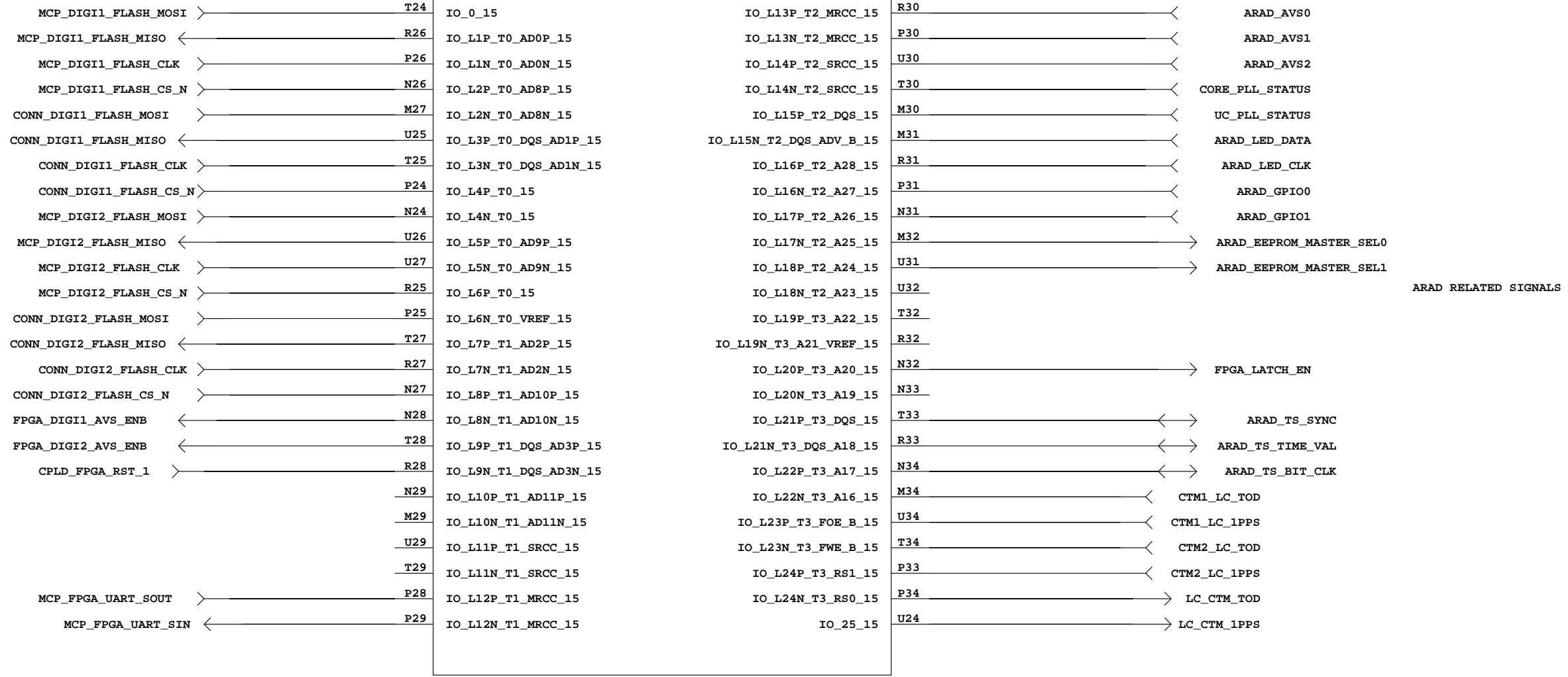


Connect a single ended clock to positive clock pin of differential clock input 1

|   |       |                   |      |
|---|-------|-------------------|------|
| CHKD:   | APPD: |                   |      |
| CARD NAME: MULTI SERVICE LINE CARD  |       | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS  |       | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)  |       |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI |       | DATE:15-09-2017   |      |
|   |       | SHEET: 201 OF 227 |      |

DIGI SPI FLASH PROGRAMMING SIGNALS FROM PROCESSOR AND EXTERNAL CONNECTOR XC7A200T-2FFG1156C-D

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ARAD RELATED SIGNALS

DIGI AV5 ENB SIGNALS TRANSLATED TO 3.3 V

STATUS SIGNALS FROM NSA JITTER ATTENUATOR

U43

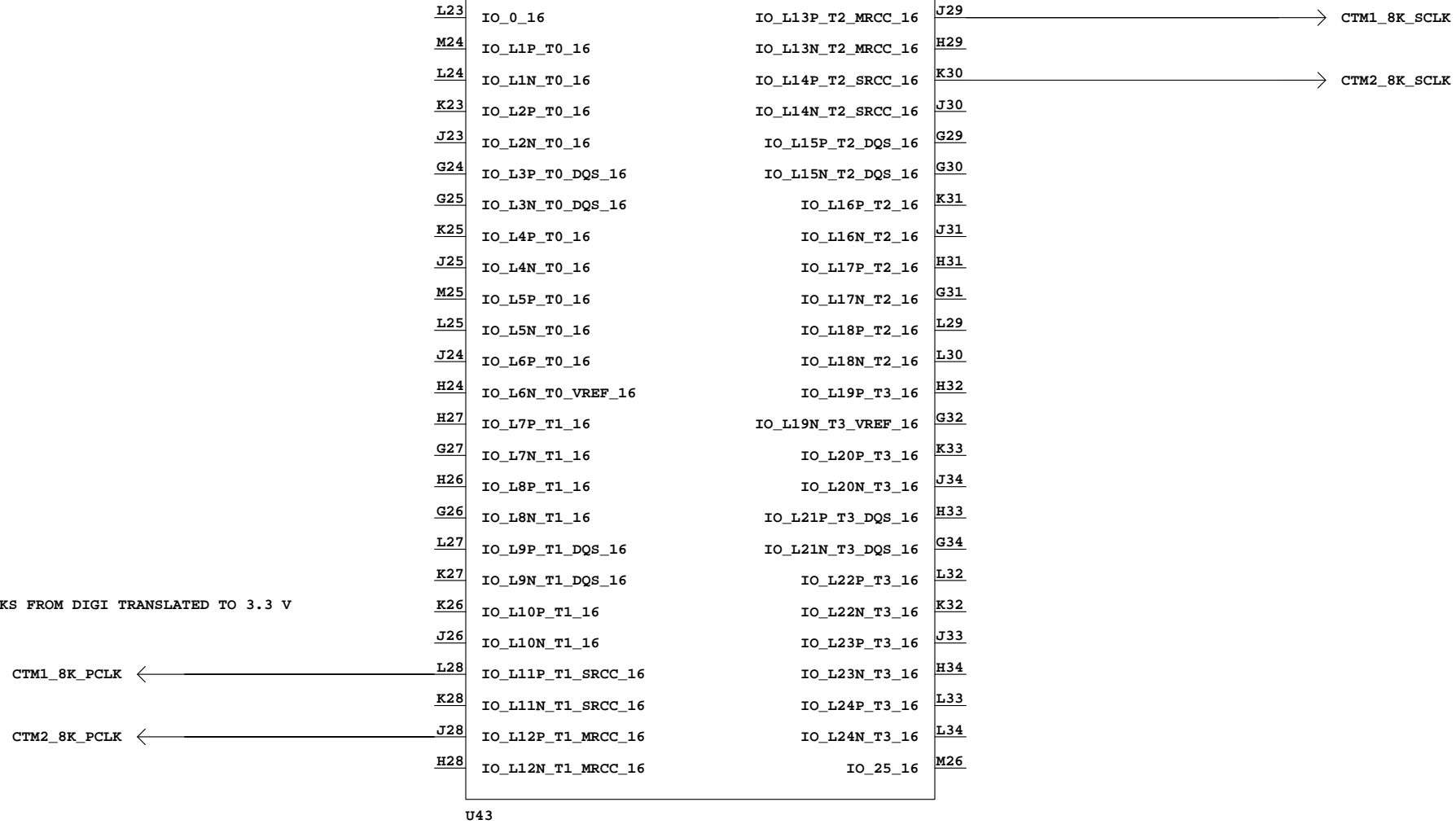
|  |       |                   |      |
|--|-------|-------------------|------|
| CHKD:  | APPD: |                   |      |
| CARD NAME: MULTI SERVICE LINE CARD   |       | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS   |       | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |       |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT |       | DATE:15-09-2017   |      |
|  |       | SHEET: 202 OF 227 |      |

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RECOVERED CLOCKS FROM DIGI TRANSLATED TO 3.3 V

RECOVERED CLOCKS FROM DIGI TRANSLATED TO 3.3 V



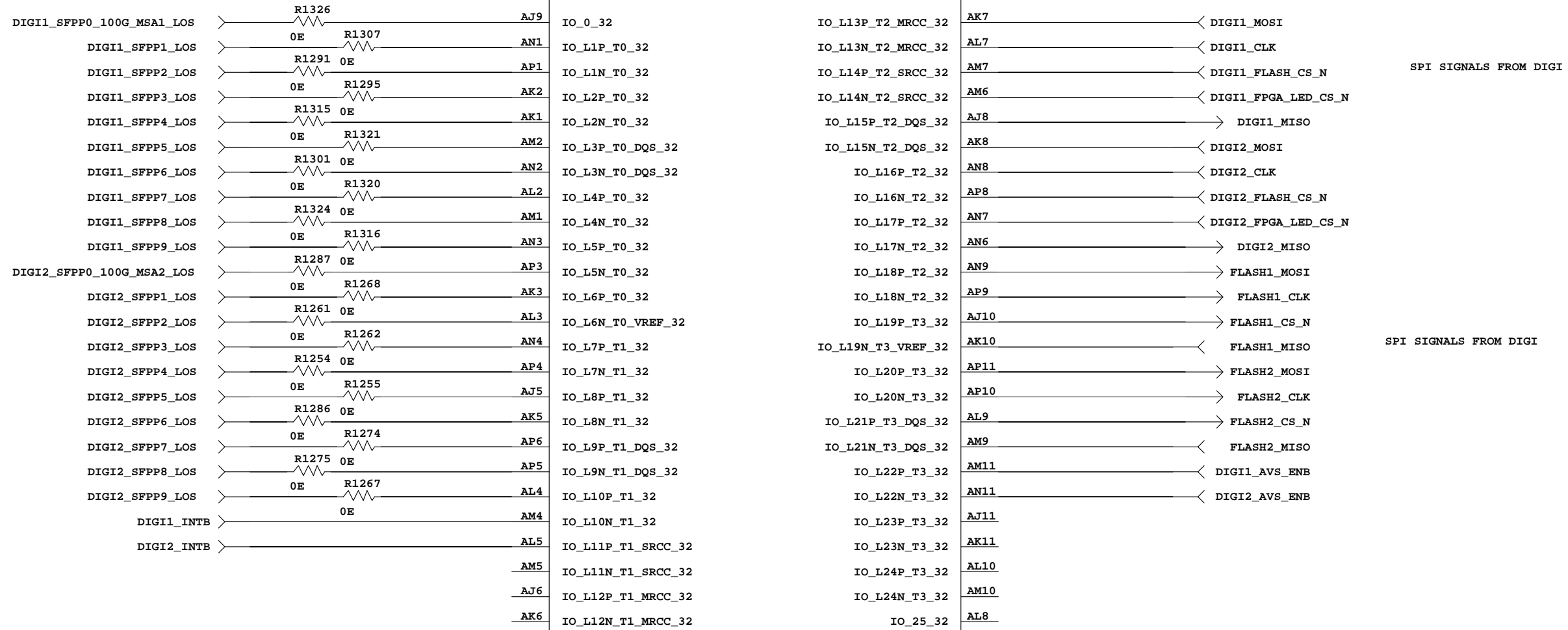
U43

|  |                   |      |  |
|--|-------------------|------|--|
| CHKD:  | APPD:             |      |  |
| CARD NAME: MULTI SERVICE LINE CARD   | ISSUE:            | REV: |  |
| CIRCUIT SCHEMATICS   | 01                | 00   |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |      |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |      |  |
|  | SHEET: 203 OF 227 |      |  |


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check resistors

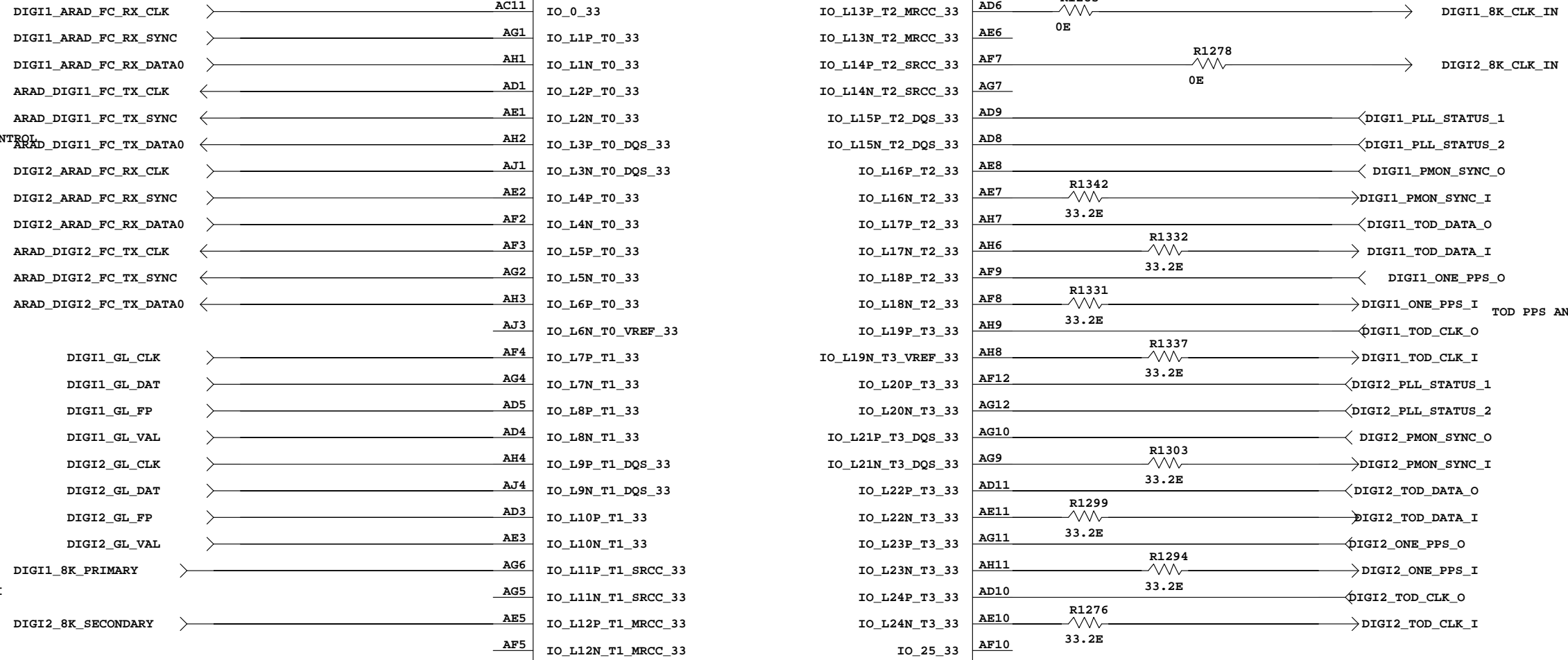


U43


|  |                   |      |  |
|--|-------------------|------|--|
| CHKD:  | APPD:             |      |  |
| CARD NAME: MULTI SERVICE LINE CARD   | ISSUE:            | REV: |  |
| CIRCUIT SCHEMATICS   | 01                | 00   |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |      |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |      |  |
|  | SHEET: 204 OF 227 |      |  |

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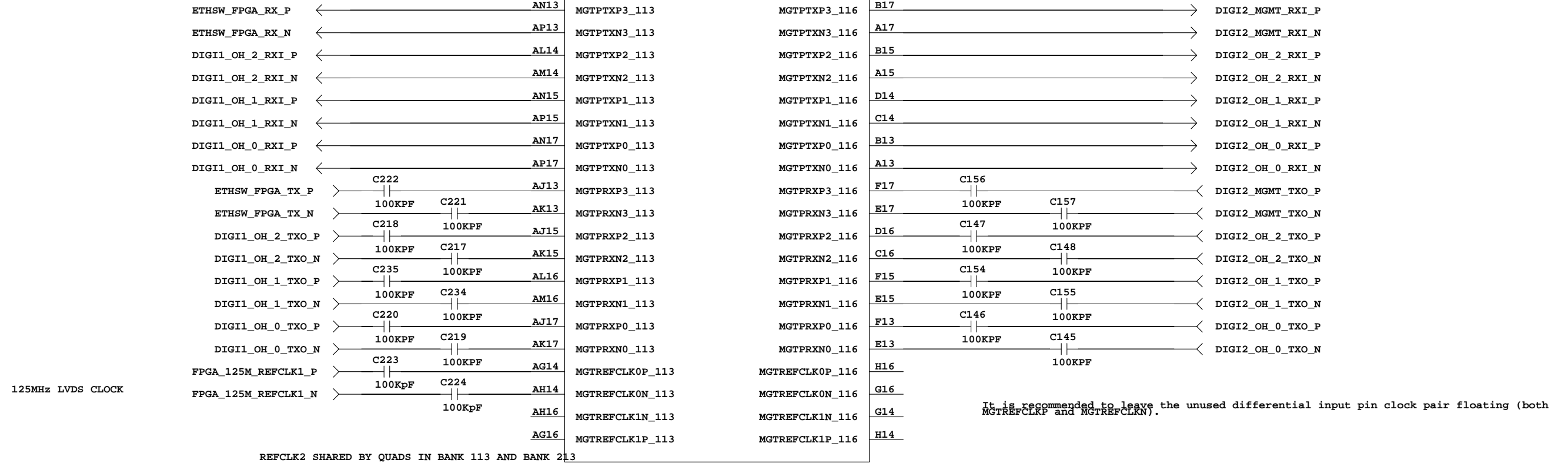



U43

|  |  |                   |      |
|--|--|-------------------|------|
| CHKD:  |  | APPD:             |      |
| CARD NAME: MULTI SERVICE LINE CARD   |  | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS   |  | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |  |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT |  | DATE:15-09-2017   |      |
|  |  | SHEET: 205 OF 227 |      |

XC7A200T-2FFG1156C-K

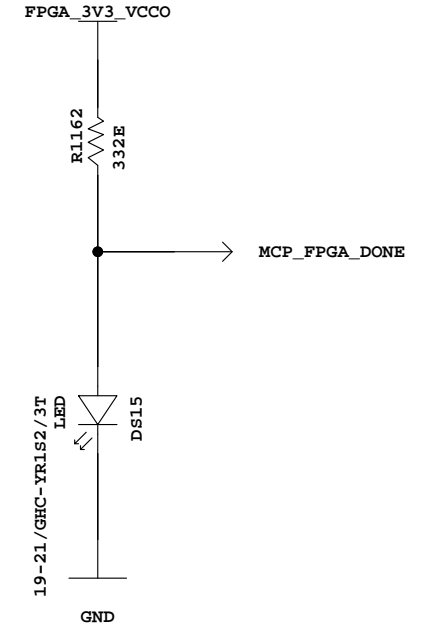
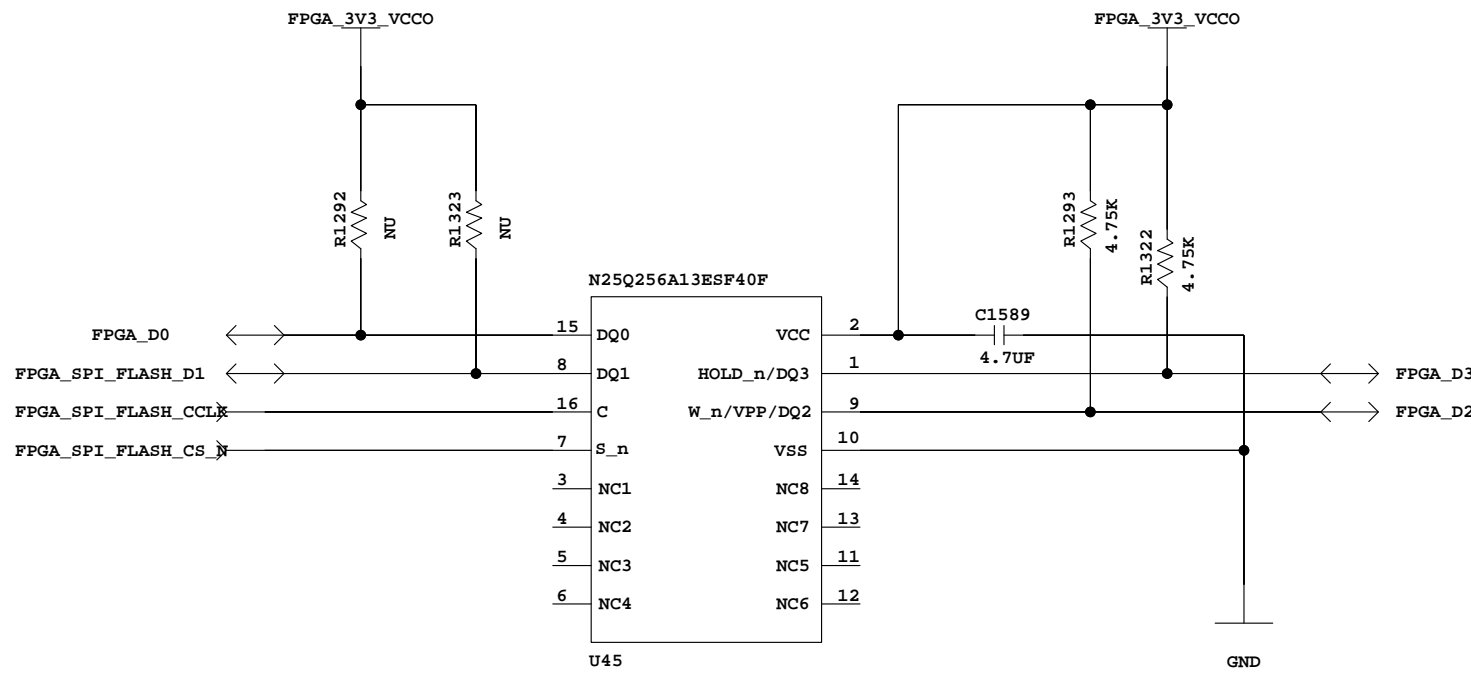
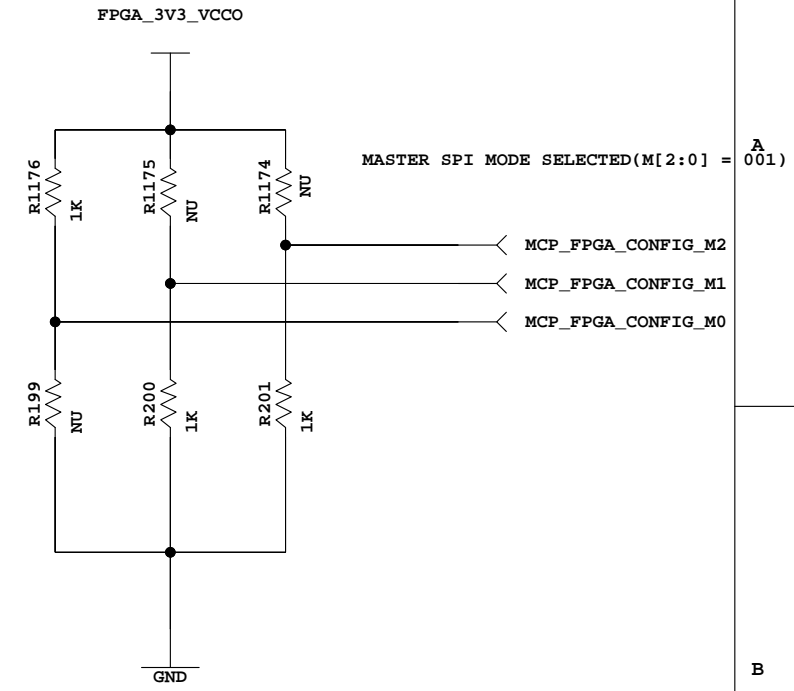
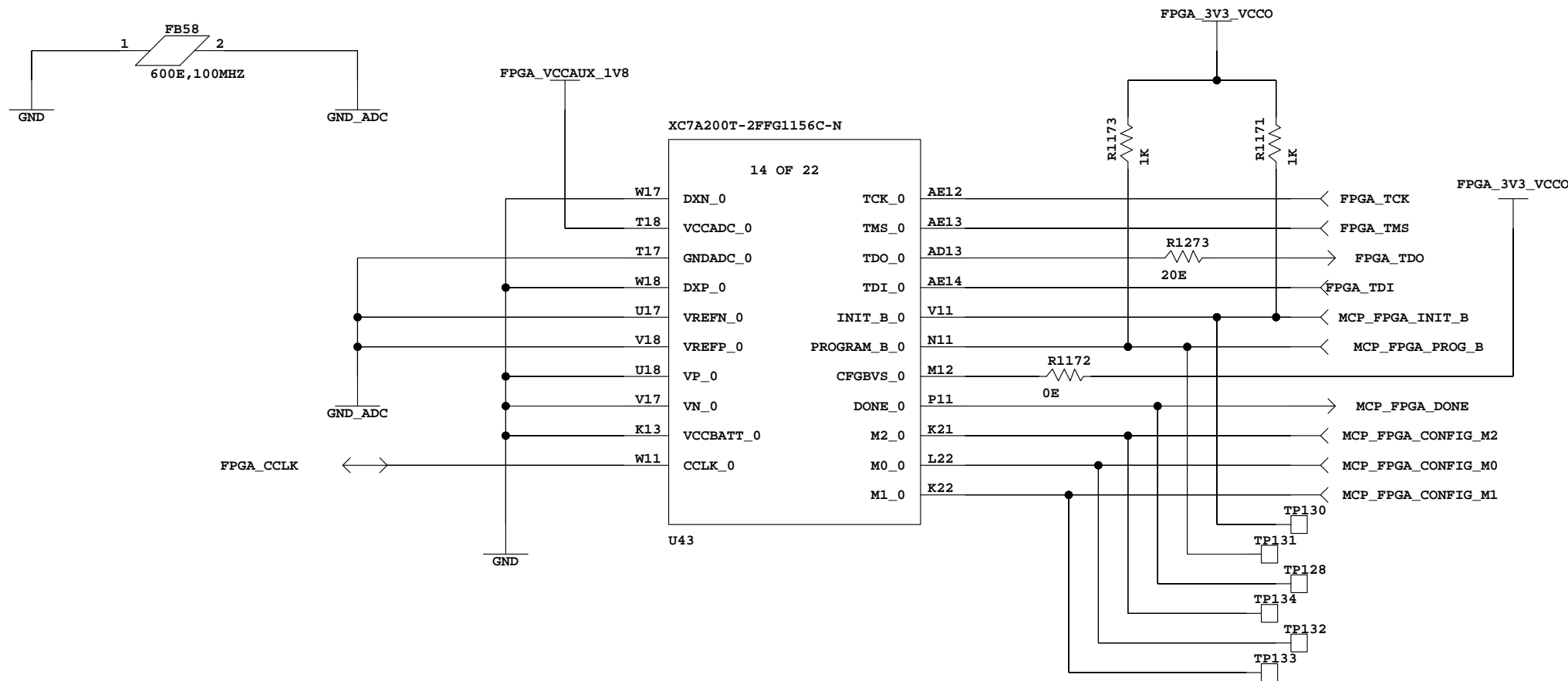
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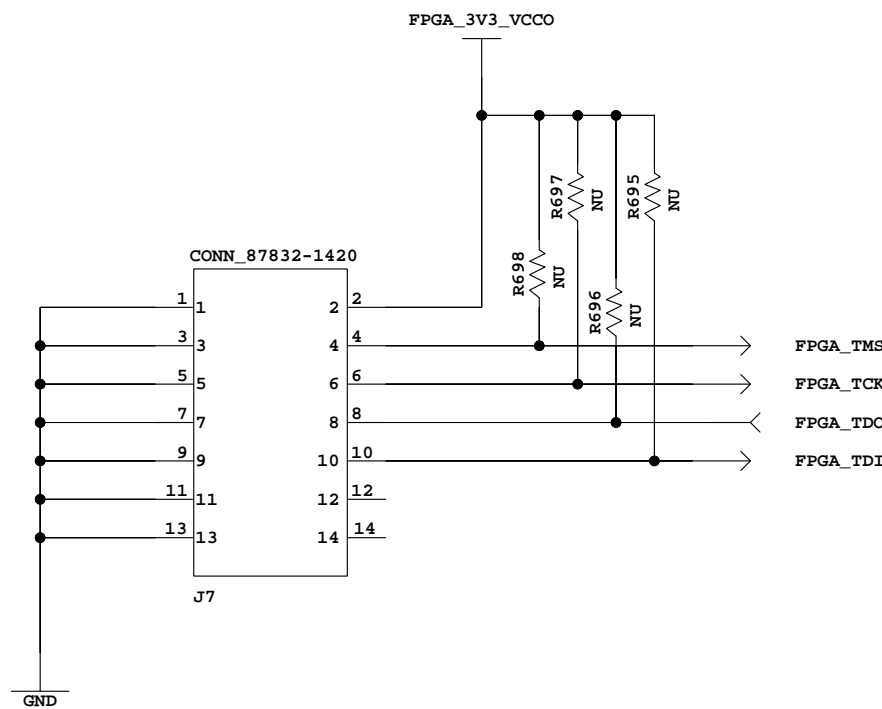
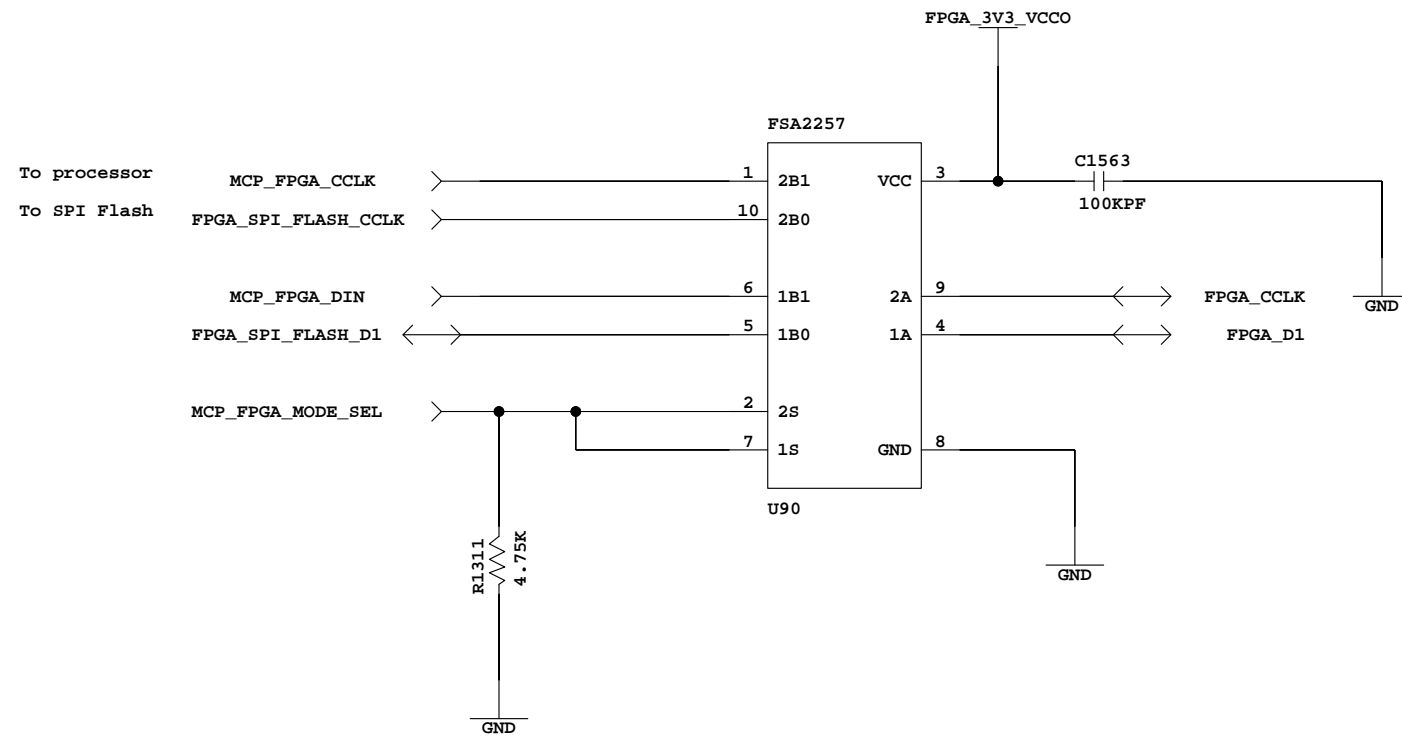
|  |                   |            |  |
|--|-------------------|------------|--|
| CHKD:  | APPD:             |            |  |
| CARD NAME: MULTI SERVICE LINE CARD<br>CIRCUIT SCHEMATICS   | ISSUE:<br>01      | REV:<br>00 |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |            |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |            |  |
|  | SHEET: 206 OF 227 |            |  |








|   |                   |         |  |
|---|-------------------|---------|--|
| CHKD:   | APPD:             |         |  |
| CARD NAME: MULTI SERVICE LINE CARD  | ISSUE: 01         | REV: 00 |  |
| CIRCUIT SCHEMATICS  |                   |         |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)  |                   |         |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI | DATE:15-09-2017   |         |  |
|   | SHEET: 208 OF 227 |         |  |



|  |                   |            |
|--|-------------------|------------|
| CHKD:  | APPD:             |            |
| CARD NAME: MULTI SERVICE LINE CARD<br>CIRCUIT SCHEMATICS   | ISSUE:<br>01      | REV:<br>00 |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |            |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |            |
|  | SHEET: 209 OF 227 |            |

A

B

C

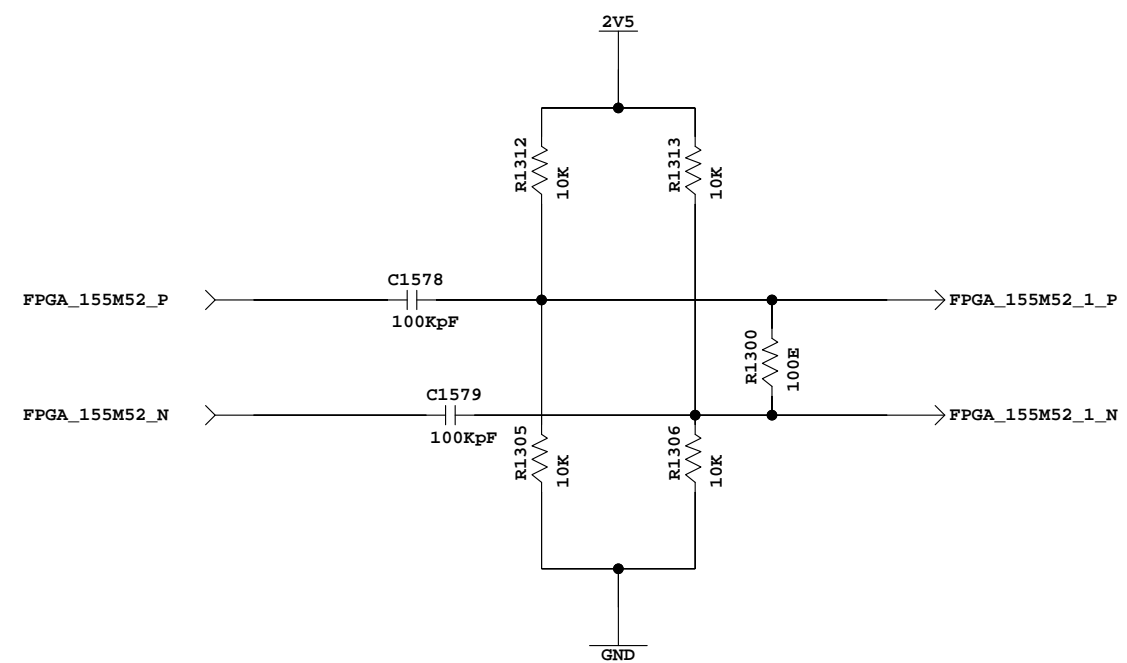
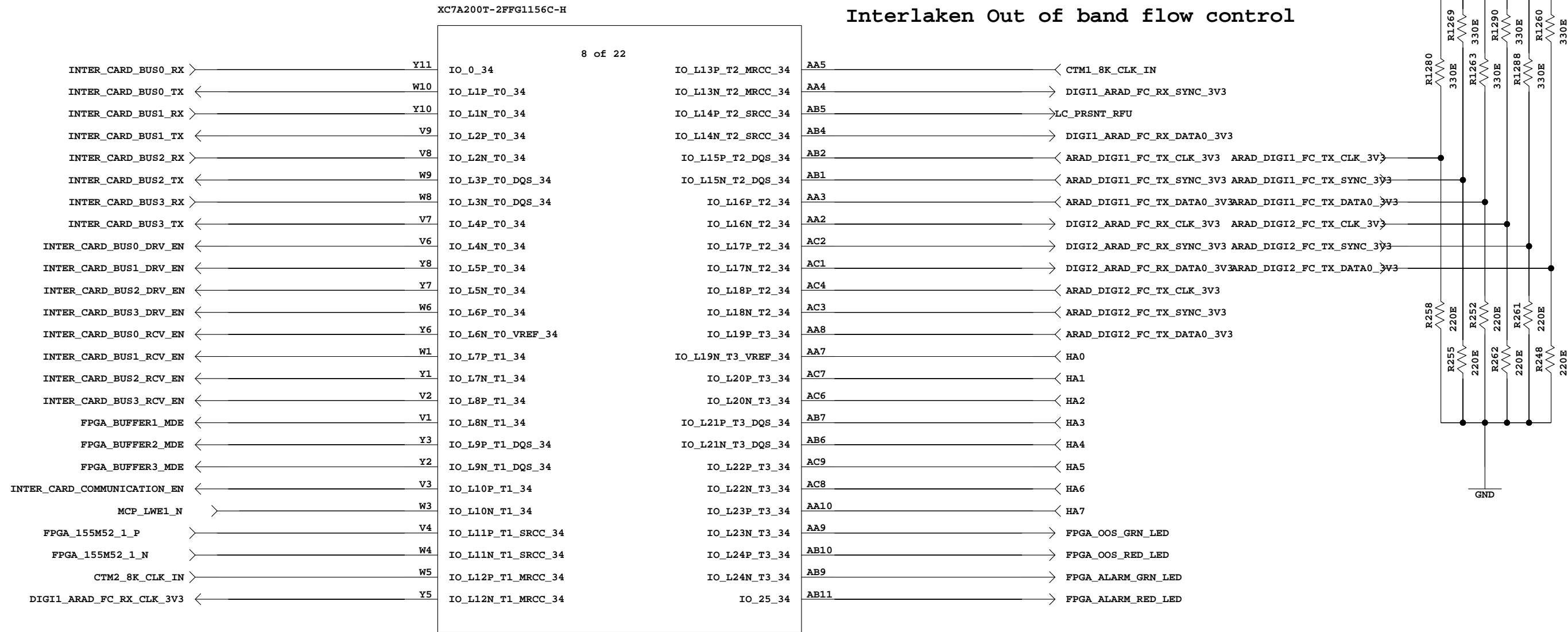
D


A

B

C

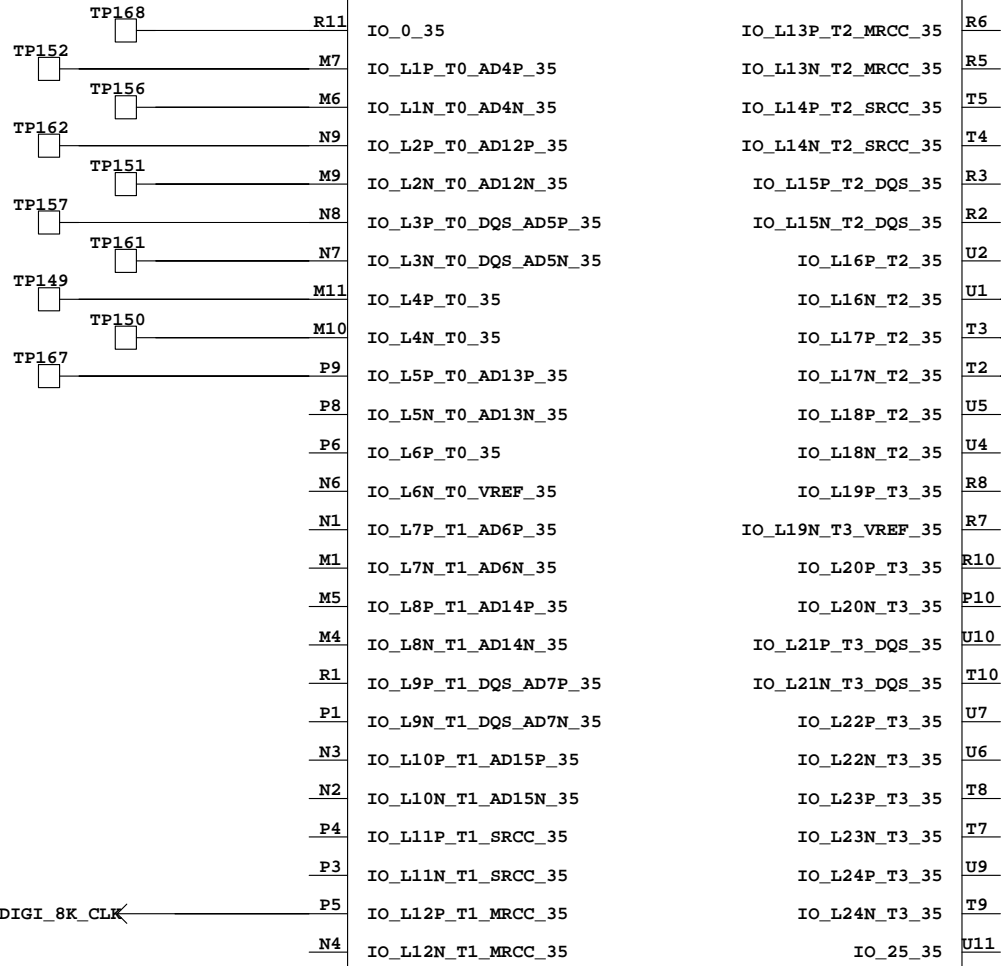
D



|   |                   |         |  |
|---|-------------------|---------|--|
| CHKD:   | APPD:             |         |  |
| CARD NAME: MULTI SERVICE LINE CARD  | ISSUE: 01         | REV: 00 |  |
| CIRCUIT SCHEMATICS  |                   |         |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)  |                   |         |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI | DATE: 15-09-2017  |         |  |
|   | SHEET: 210 OF 227 |         |  |

XC7A200T-2FFG1156C-I

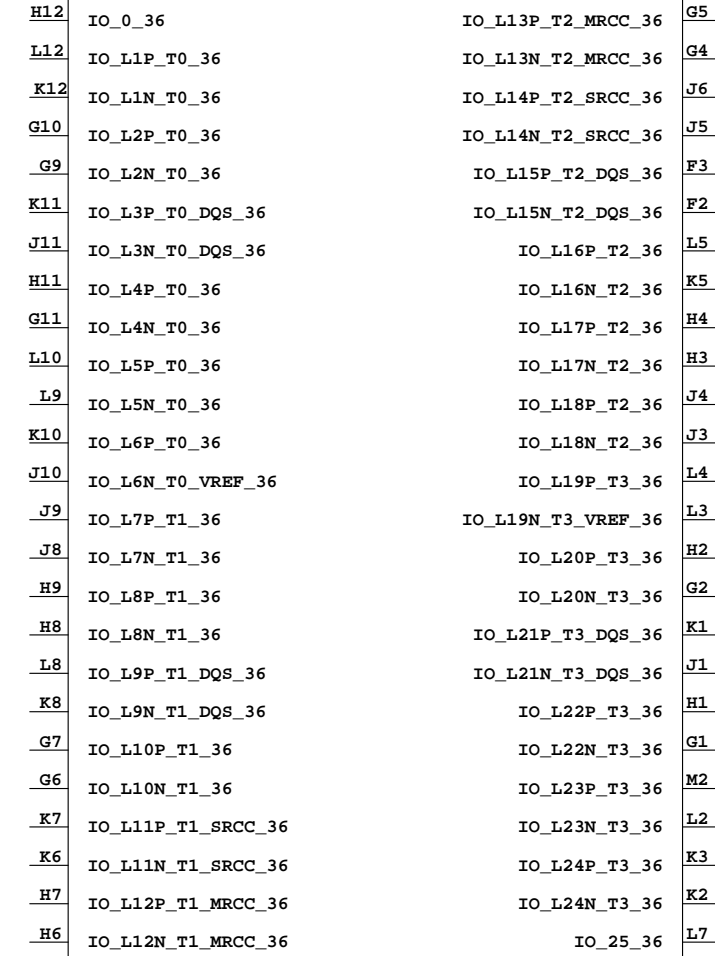
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U43

FPGA\_CPLD\_DIGI\_8K\_CLK

|   |       |                   |      |
|---|-------|-------------------|------|
| CHKD:   | APPD: |                   |      |
| CARD NAME: MULTI SERVICE LINE CARD  |       | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS  |       | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)  |       |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI |       | DATE:15-09-2017   |      |
|   |       | SHEET: 211 OF 227 |      |

A

B

C

D

A

B

C

D

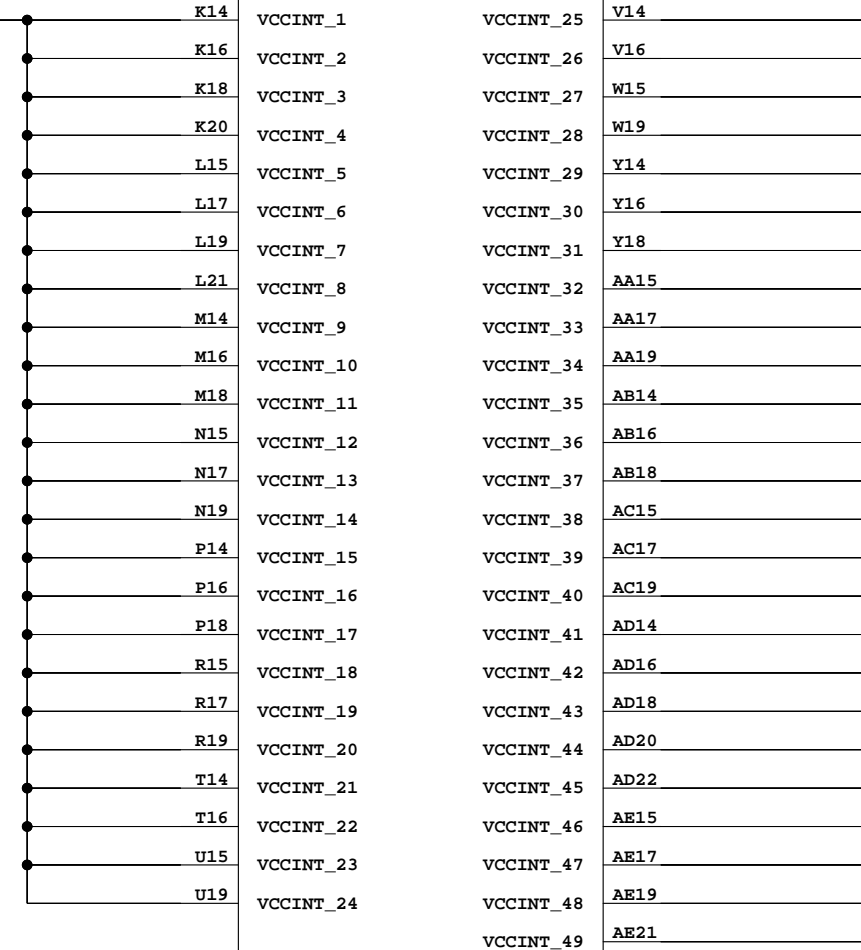
XC7A200T-2FFG1156C-M

Table with 4 columns: Pin ID, NC pin, NC pin, Pin ID. Contains 50 rows of pin connections for device XC7A200T-2FFG1156C-M.

FPGA\_VCCINT

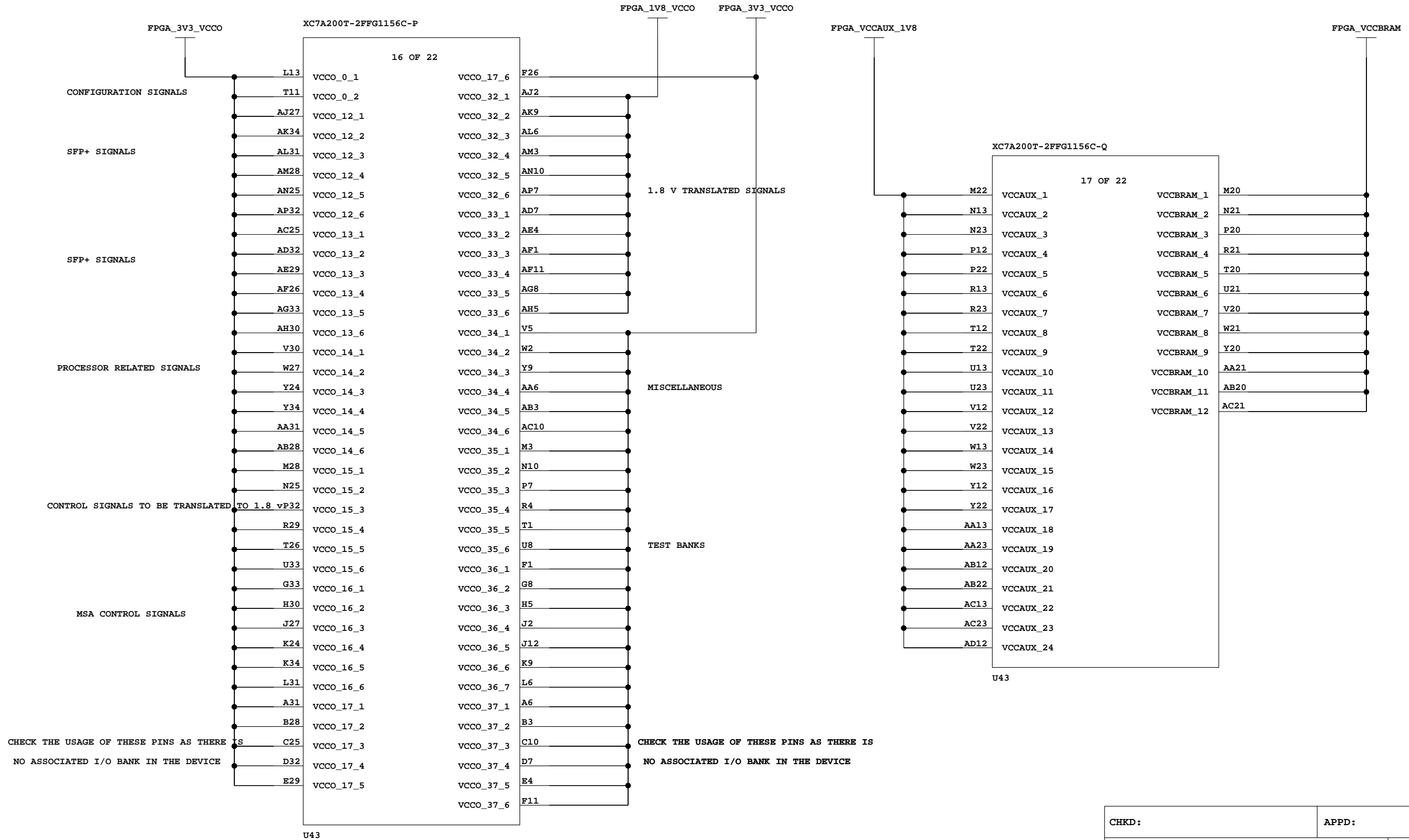
FPGA\_VCCINT


XC7A200T-2FFG1156C-O

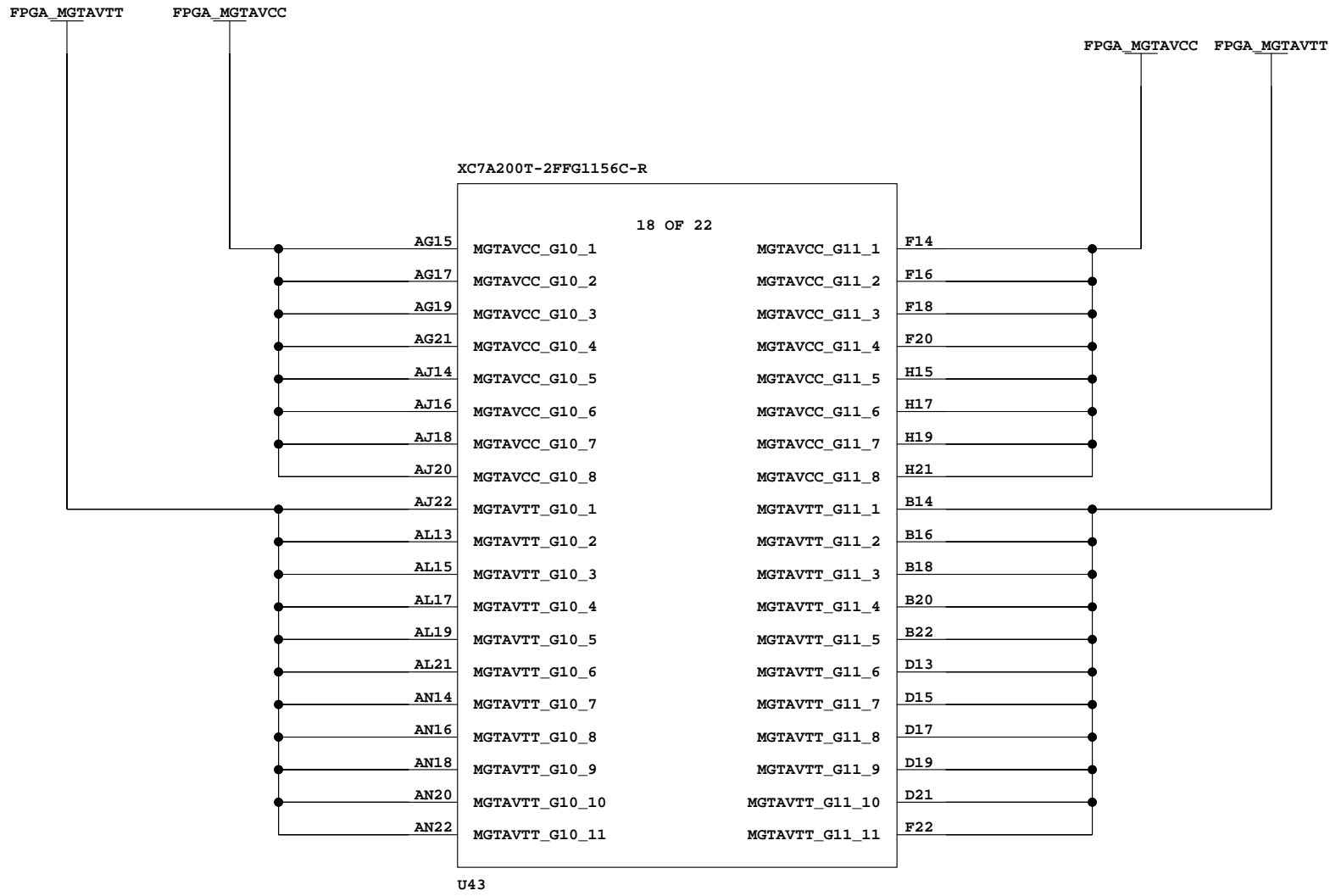



U43

Table with 4 columns: CHKD, APPD, CARD NAME, ISSUE, REV, DWG.NO., DATE, SHEET. Contains project and drawing information.

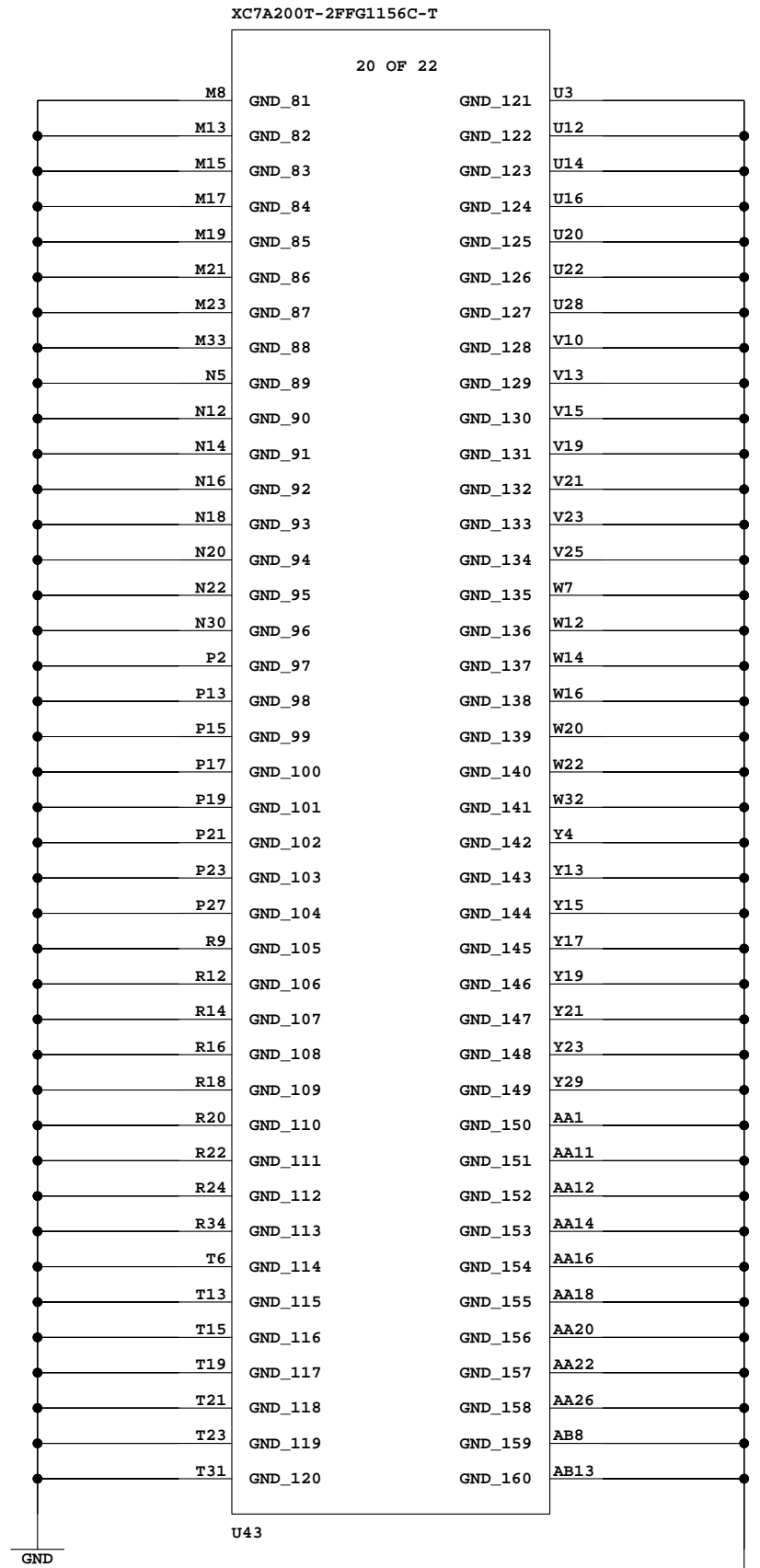
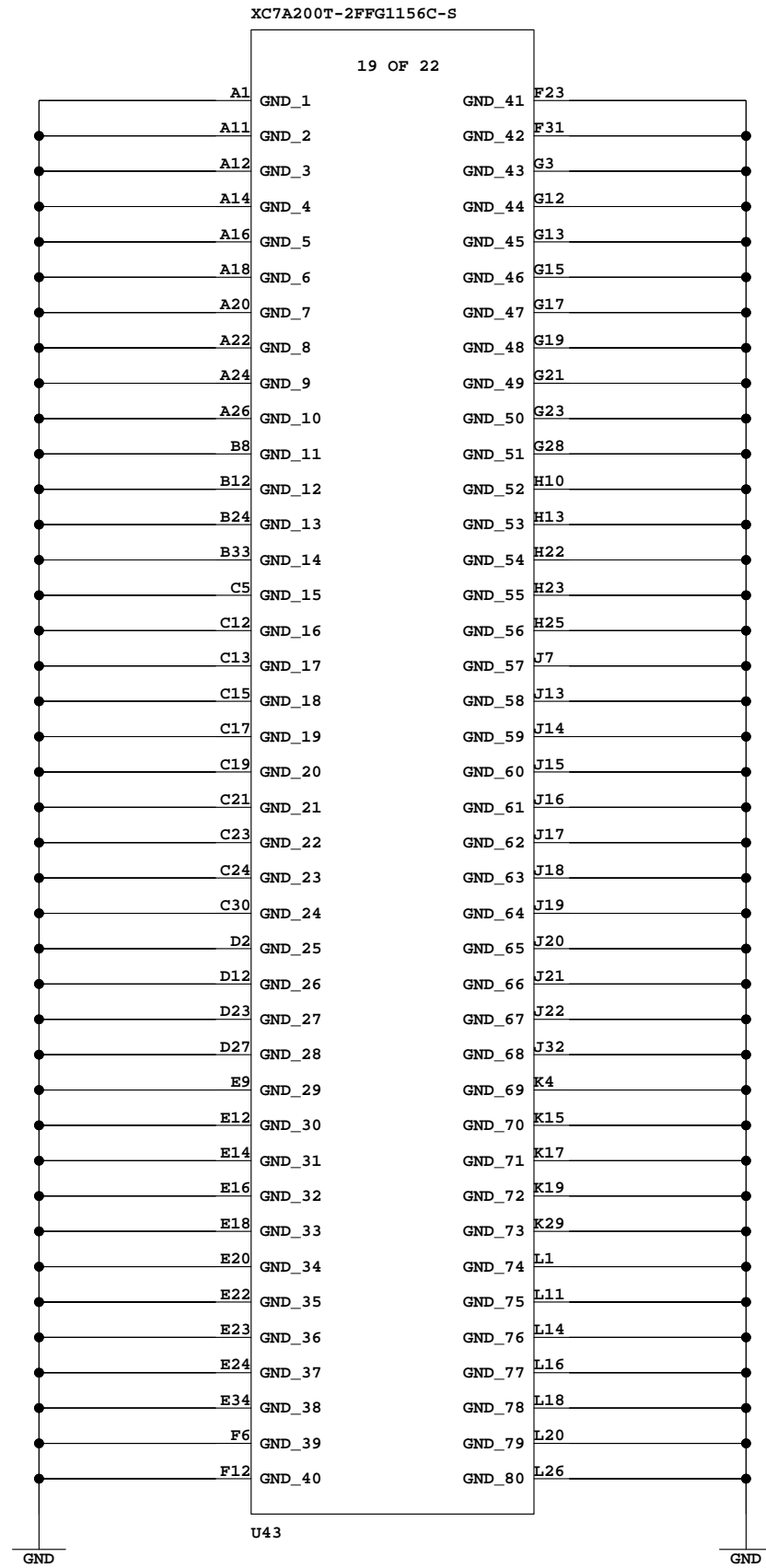



|  |                   |      |  |
|--|-------------------|------|--|
| CHKD:  | APPD:             |      |  |
| CARD NAME: MULTI SERVICE LINE CARD   | ISSUE:            | REV: |  |
| CIRCUIT SCHEMATICS   | 01                | 00   |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |      |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |      |  |
|  | SHEET: 213 OF 227 |      |  |



|  |                   |      |  |
|--|-------------------|------|--|
| CHKD:  | APPD:             |      |  |
| CARD NAME: MULTI SERVICE LINE CARD   | ISSUE:            | REV: |  |
| CIRCUIT SCHEMATICS   | 01                | 00   |  |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |      |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |      |  |
|  | SHEET: 214 OF 227 |      |  |





|  |  |                   |      |
|--|--|-------------------|------|
| CHKD:  |  | APPD:             |      |
| CARD NAME: MULTI SERVICE LINE CARD   |  | ISSUE:            | REV: |
| CIRCUIT SCHEMATICS   |  | 01                | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |  |                   |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT |  | DATE:15-09-2017   |      |
|  |  | SHEET: 215 OF 227 |      |

A

B

C

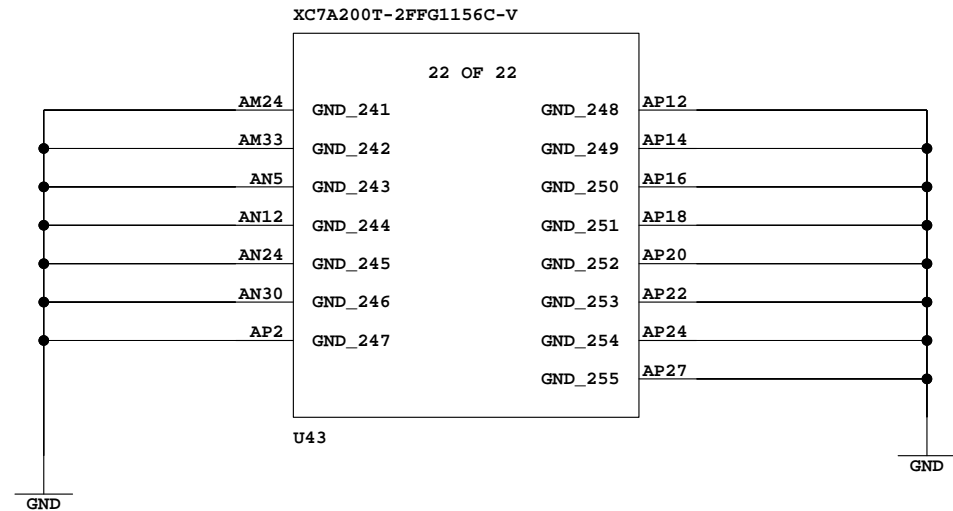
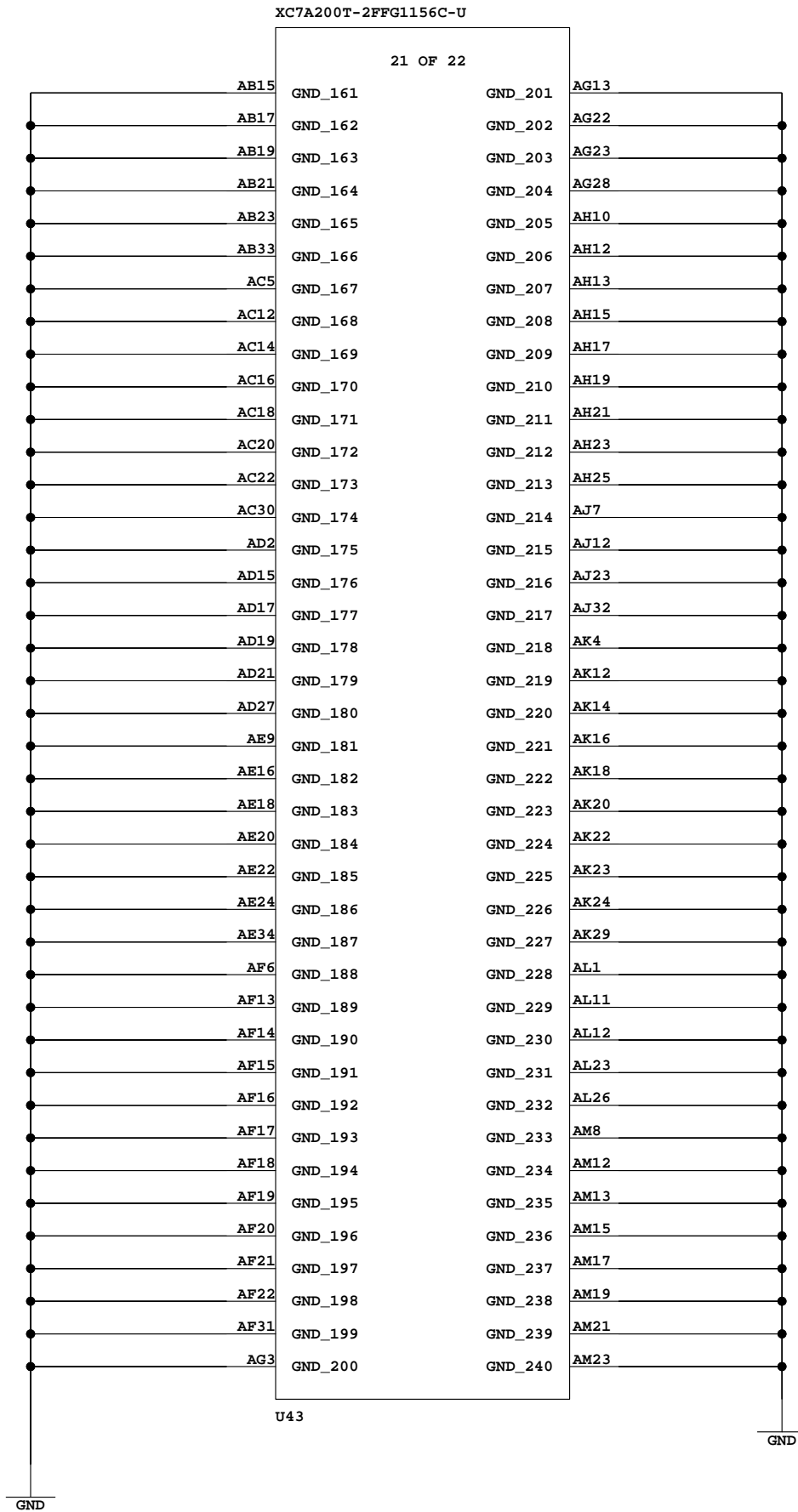
D


A

B

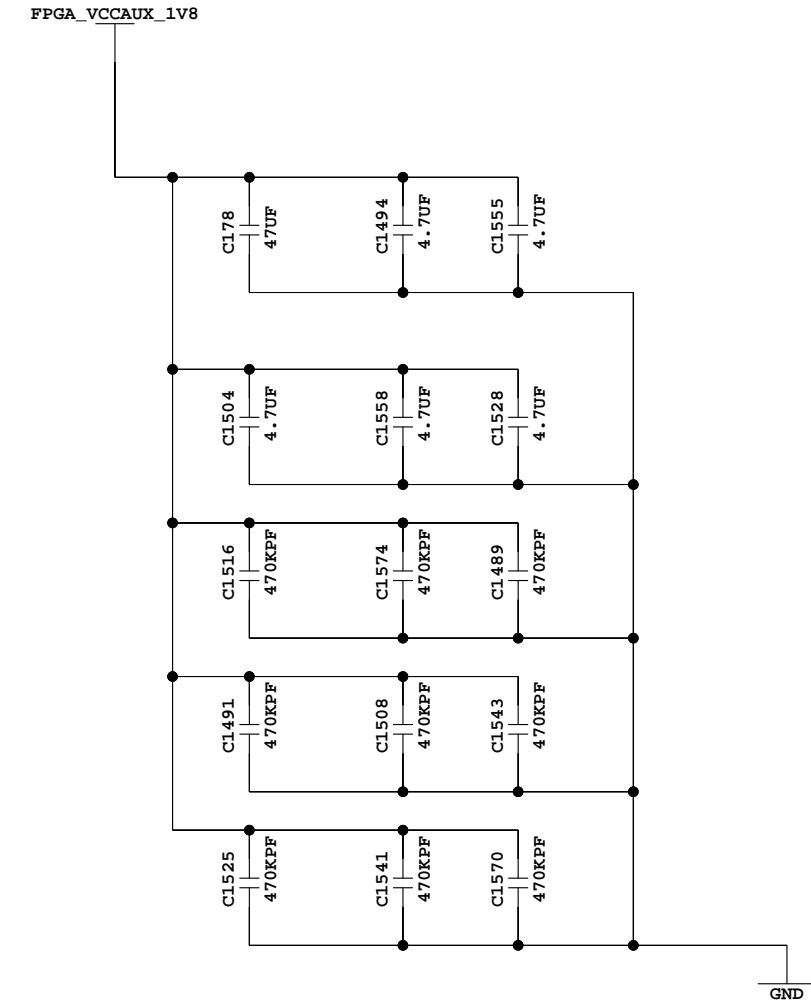
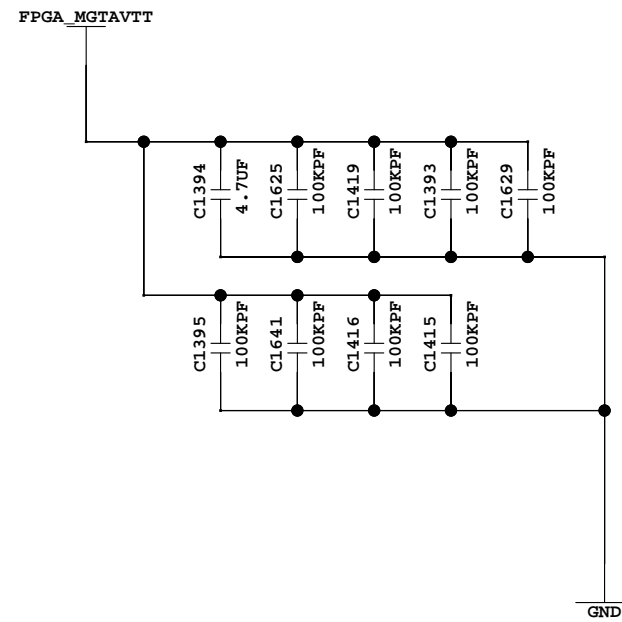
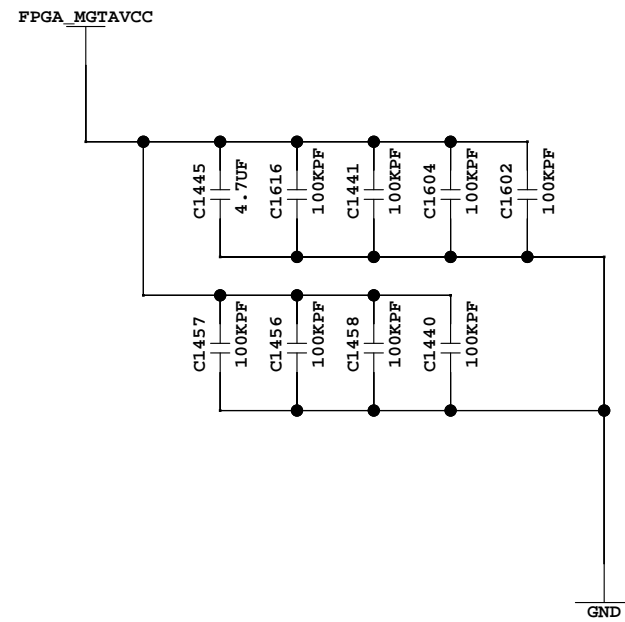
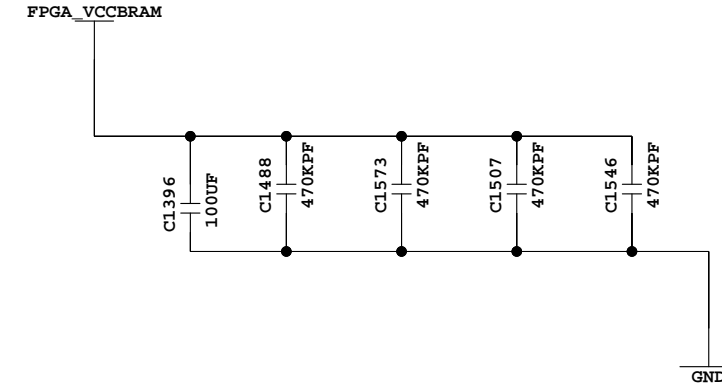
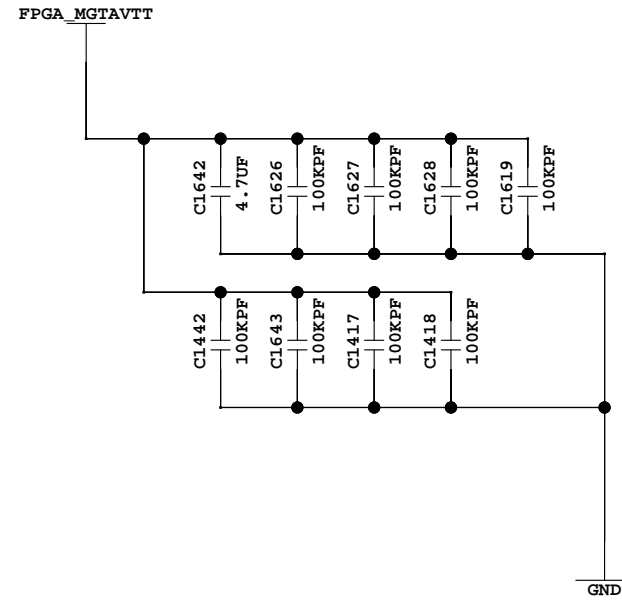
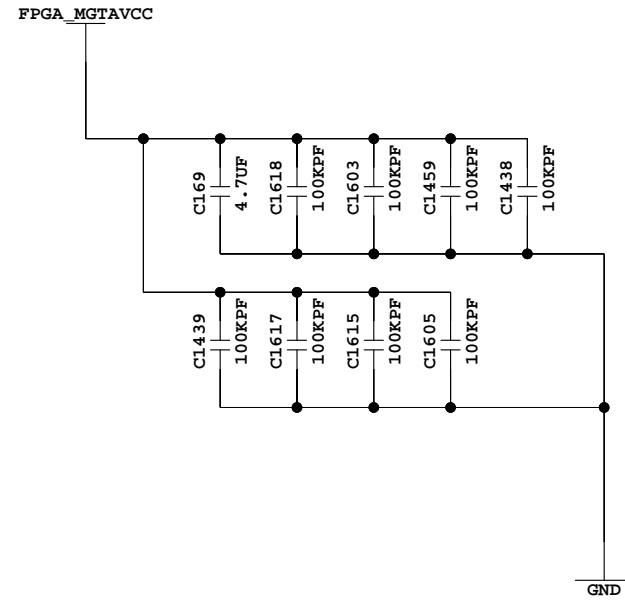
C


D

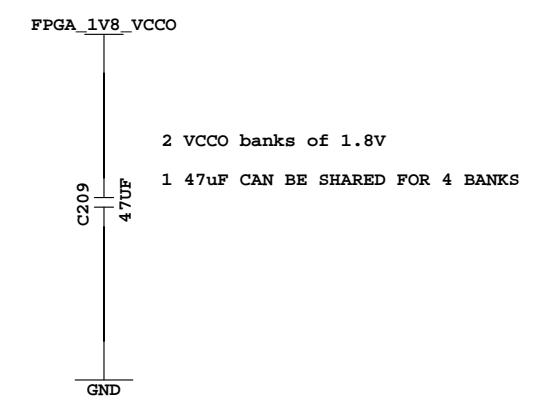
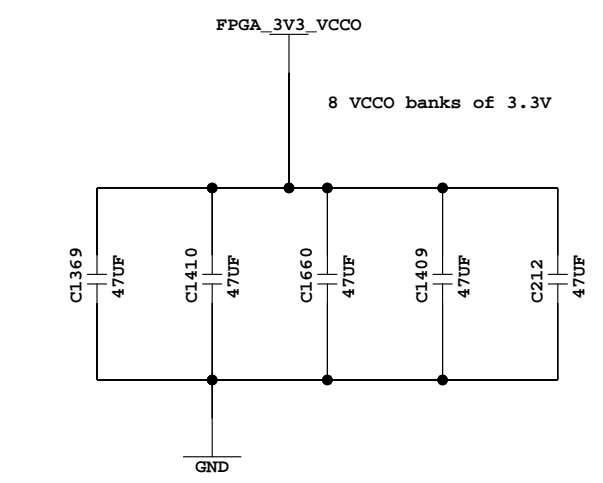
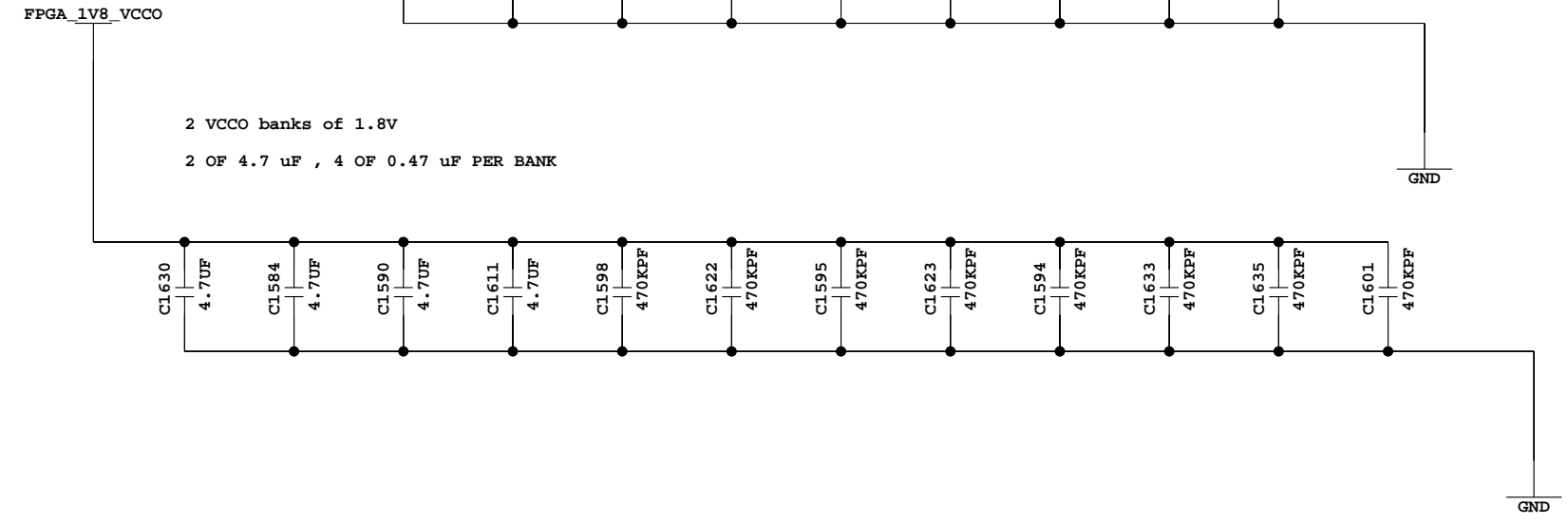
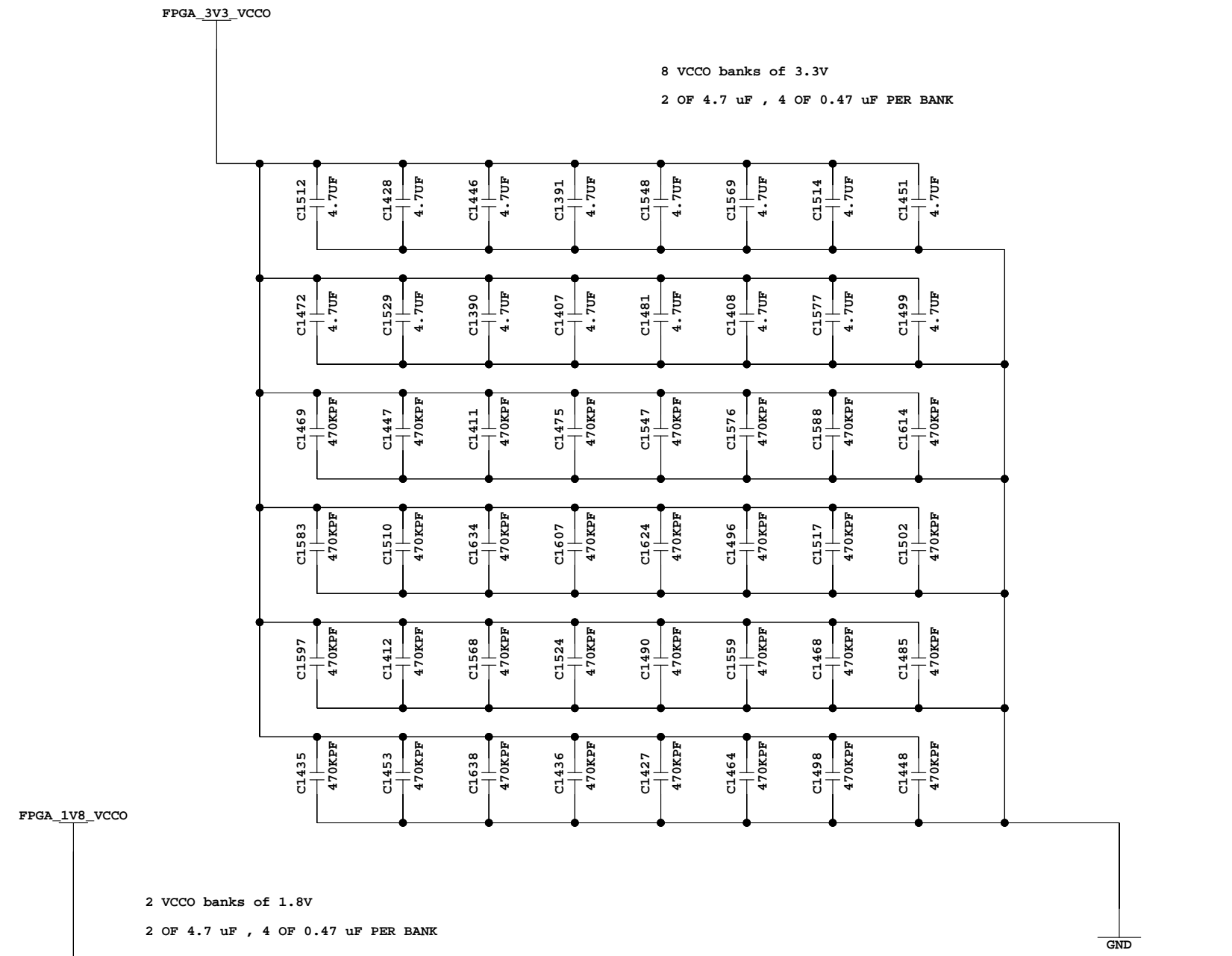
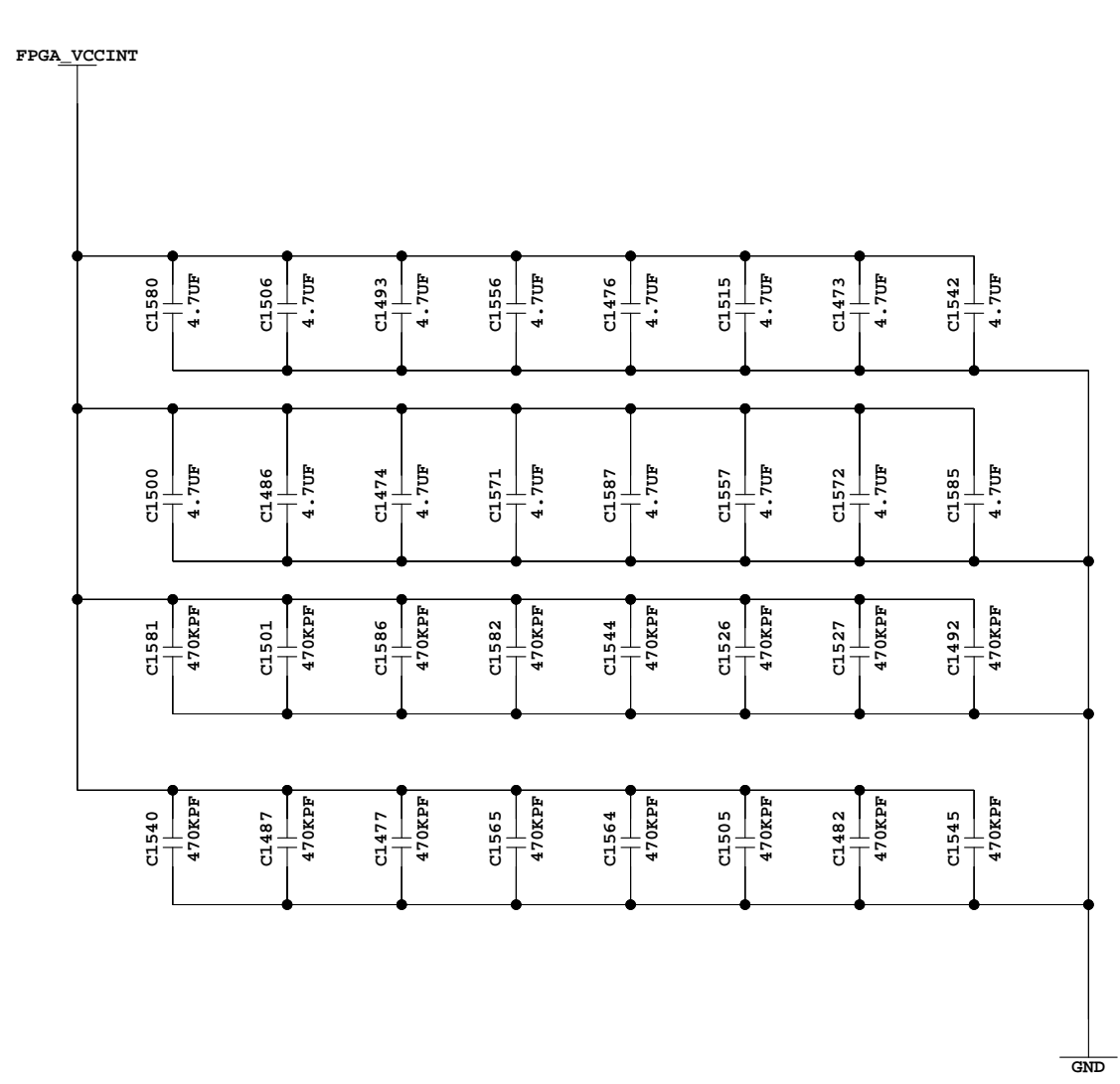



|  |                   |        |      |
|--|-------------------|--------|------|
| CHKD:  | APPD:             |        |      |
| CARD NAME: MULTI SERVICE LINE CARD   |                   | ISSUE: | REV: |
| CIRCUIT SCHEMATICS   |                   | 01     | 00   |
| DWG.NO.: APC-MSMH14/G-SE1 (CS)   |                   |        |      |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:15-09-2017   |        |      |
|  | SHEET: 216 OF 227 |        |      |

The larger 4.7 uF capacitors should be placed in close proximity and outside the perimeter of the FPGA pin field. The 0.1uF capacitors on the other hand must be placed as close to the GTP Quad power supply pins as possible.



|  |                   |      |  |
|--|-------------------|------|--|
| CHKD:  | APPD:             |      |  |
| CARD NAME: MULTI SERVICE LINE CARD CIRCUIT SCHEMATICS  | SCHEMATIC         | REV: |  |
| CIRCUIT SCHEMATICS   | 01                | 00   |  |
| DWG.NO.: APC-MSMH14/I-SE1 (CS)   |                   |      |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI<br>C-DOT | DATE:10-07-2017   |      |  |
|  | SHEET: 217 OF 227 |      |  |



|   |           |                   |  |
|---|-----------|-------------------|--|
| CHKD:   | APPD:     |                   |  |
| CARD NAME: MULTI SERVICE LINE CARD CIRCUIT SCHEMATICS   | SCHEMATIC | REV: 00           |  |
| CIRCUIT SCHEMATICS  |           | 01                |  |
| DWG.NO.: APC-MSMH14/I-SE1 (CS)  |           |                   |  |
|  CENTRE FOR DEVELOPMENT OF<br>TELEMATICS-DELHI |           | DATE:10-07-2017   |  |
|   |           | SHEET: 218 OF 227 |  |