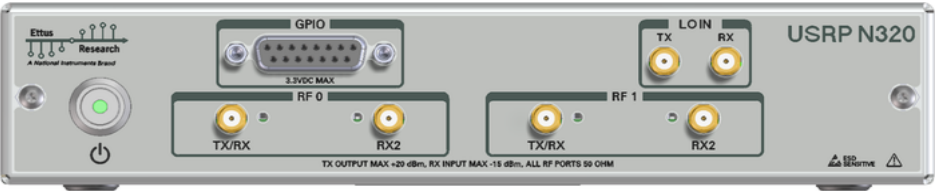


| ORDERED                                       | Tracking information | DELIVERED | Model  | Supplier            | PN               | Description   | QTY | Cost | Ext Cost | Notes                               |
|---|----------------------|-----------|--|---------------------|------------------|---|-----|------|----------|-------------------------------------|
|   |                      |           | <b>NI Products</b>   |                     |                  |   |     |      |          |                                     |
|   |                      |           | OctoClock-G CDA-2990   | NI                  | 784306-01        | CDA-2990 8 CHANNEL CLOCK DISTRIBUTION ACCESSORY WITH GPSDO                    | 1   |      | \$0.00   |                                     |
| Add part numbers to shopping cart here        |                      |           | OctoClock CDA-2990   | NI                  | 784305-01        | CDA-2990, 8 CHANNEL CLOCK DISTRIBUTION ACCESSORY                              | 2   |      | \$0.00   |                                     |
| Shopping Cart - National Instruments (ni.com) |                      |           | USRP N320  | NI                  | 786503-01        | USRP N320 (2 TX/RX CHANNELS, 200 MHZ BW) - ETTUS RESEARCH                     | 10  |      | \$0.00   |                                     |
|   |                      |           | USRP N321  | NI                  | 786504-01        | USRP N321 (2 TX/RX CHANNELS, 200 MHZ BW, W/LO DISTRIBUTION) - ETTUS           | 6   |      | \$0.00   |                                     |
|   |                      |           | 10Gb SFP Cables  | NI                  | 783343-01        | 10 GIGABIT SFP+ ETHERNET CABLE, 1 M - ETTUS RESEARCH                          | 16  |      | \$0.00   | For the x710 Network Card           |
|   |                      |           | .3M SMA to SMA Cable   | NI                  | 763444-01        | SMA MALE TO SMA MALE CABLE, 50 OHM, 38.1 CM                                   |     |      | \$0.00   |                                     |
|   |                      |           | 0.6M SMA to SMA Cable & Attenuator   | NI                  | 782781-01        | 2 0.6M SMA-M to SMA-M cables and 2 SMA-F to SMA-M Attenuators                 |     |      | \$0.00   |                                     |
|   |                      |           | 2M SMA to SMA Cables   | NI                  | 783470-01        | CABLE ASSEMBLY, SMA TO SMA, 2M  |     |      | \$0.00   |                                     |
|   |                      |           | RF Torque Screwdriver and SMA Driver Bit                                       | NI                  | 780895-01        | RF Torque Screwdriver and SMA Driver Bit                                      | 1   |      | \$0.00   |                                     |
|   |                      |           | USRP N3xx Rack Mount Accessory   | NI                  | 786467-01        | USRP N3xx Rack Mount Accessory  | 8   |      | \$0.00   |                                     |
|   |                      |           | <b>Server &amp; Network Cards</b>  |                     |                  |   |     |      |          |                                     |
|   |                      |           | Server   | SuperMicro          | 4124GS-TNR       | Dual AMD EPYC™ 7002 GPU Server  | 1   |      | \$0.00   | Do not mix Servers                  |
|   |                      |           | Server   | Trenton             | BAC3000          | Dual Intel® 3rd Gen Xeon® Scalable Processors                                 | 1   |      | \$0.00   | Do not mix Servers                  |
|   |                      |           | M.2 storage drive  | Amazon              | S8-RKT4P-2TB     | Sabrent 2TB Rocket 4 Plus NVMe 4.0 Gen4 PCIe M.2 Internal SSD Extreme Pe      | 8   |      | \$0.00   |                                     |
|   |                      |           | M.2 PCIe controller  | Highpoint           | SSD7505          | HighPoint SSD7505 PCIe 4.0 x16 4-Channel M.2 NVMe RAID Controller             | 2   |      | \$0.00   |                                     |
|   |                      |           | Network Adapter x710 4 SFP+ Ports  | CDW                 | X710DA4FH        | Intel Ethernet Converged Network Adapter X710-DA4 - network adapter - PC      | 4   |      | \$0.00   | Do not mix different network cards. |
|   |                      |           | Network Adapter e810 2 QSFP+ Ports   | CDW                 | E810CQDA2        | Intel Ethernet Network Adapter E810-CQDA2 - network adapter - PCIe 4.0 x1     | 2   |      | \$0.00   | Do not mix different network cards. |
|   |                      |           | QSFP28 to SFP28  | CDW                 | MCP7F00-A002R30N | Mellanox LinkX 100GBase direct attach cable - 6.6 ft                          | 4   |      | \$0.00   | Use with E810-CQ card               |
|   |                      |           | <b>Rack Assembly</b>   |                     |                  |   |     |      |          |                                     |
|   |                      |           | 42U Open Frame Rack Enclosure Server Cabinet 3000lb Capacity                   | CDW                 | SR42UBEXPND      |   | 1   |      | \$0.00   |                                     |
|   |                      |           | 1U Adjustable Mount Depth Heavy Duty Vented Rack Mount Shelf                   | CDW- StarTech       | ADJSHELFHDV      |   | 2   |      | \$0.00   |                                     |
|   |                      |           | APC rack shelf- 1U   | CDW- APC            | AR8125           |   | 2   |      | \$0.00   |                                     |
|   |                      |           | Rackmount extension bracket  | CDW                 | B018-000-1P5     |   | 8   |      | \$0.00   |                                     |
|   |                      |           | HW1032-50 Cage   | Rackmount Solutions | HW1032-50 Cage   | Screws, Cage Nuts, Washers  | 5   |      |          |                                     |
|   |                      |           | Relay Rack or 4 Post Rack Cabinet.   | IAENCLOSURES.CO     | M                |   |     |      |          |                                     |
|   |                      |           | Vented Server Rack Mount Shelf   | StarTech            | ADJSHELF         | StarTech.com 1U Adjustable Vented Server Rack Mount Shelf - 175lbs - 19.5     | 1   |      | \$0.00   |                                     |
|   |                      |           | Tripp Lite Rack Enclosure Server Blanking Panel Kit                            | CDW- Tripp-Lite     | 3849592          | Tripp Lite Rack Enclosure Server Cabinet 4 Piece Blanking Panel Kit 19 in     | 1   |      | \$0.00   |                                     |
|   |                      |           | Side Panel for SR42UB Rack Enclosure with Key Lock Latch                       | Amazon              | SR42SIDE         | Tripp Lite SR42SIDE Side Panel for SR42UB Rack Enclosure with Key Lock Lat    | 4   |      | \$0.00   |                                     |
|   |                      |           | Black Slotted-Duct Raceway   | Amazon              | RMT312A          | Black Box 2.25" H x 1.5" W, 72" L Black Slotted-Duct Raceway                  | 2   |      | \$0.00   |                                     |
|   |                      |           | <b>Rack Devices</b>  |                     |                  |   |     |      |          |                                     |
|   |                      |           | Network Switch   | Amazon              | Cisco SG110-24   |   | 1   |      | \$0.00   |                                     |
|   |                      |           | Basic Power Distribution Unit  | CDW                 | PDU1220          | Tripp Lite PDU Single Phase Basic Horizontal 120V 2.4kw 13 5-15/20R 20A 1     | 1   |      | \$0.00   |                                     |
|   |                      |           | Switched Power Distribution Unit   | CDW                 | PDUMH20NET       | Tripp Lite PDU Switched 120V 20A 5-15/20R 16 Outlet 1URM                      | 1   |      | \$0.00   |                                     |
|   |                      |           | 8 way power splitter/combiner  | Mini Circuits       | ZN8PD1-63W-S+    |   | 8   |      | \$0.00   |                                     |
|   |                      |           | 4 way power splitter/combiner  | Mini Circuits       | ZN4PD1-63HP-S+   |   | 2   |      | \$0.00   |                                     |
|   |                      |           | Rack Console   |                     |                  | KVM rack or equivalent  |     |      |          |                                     |
|   |                      |           | Stanley 31610 SurgeMax Pro 9 Outlet Metal Surge Protector, Black               | Stanley / Amazon    | 31610            | Stanley 31610 SurgeMax Pro 9 Outlet Metal Surge Protector, Black              | 2   |      | \$0.00   |                                     |
|   |                      |           | <b>Cables &amp; Management</b>   |                     |                  |   |     |      |          |                                     |
|   |                      |           | Cat 6 RJ45 Cables  | Amazon              | 160021-5x5       |   | 5   |      | \$0.00   |                                     |
|   |                      |           | 10' power cable  | CDW                 | P006-010         | Tripp Lite Computer Power Extension Cord Adapter 10A 18AWG 5-15P to C:        | 12  |      | \$0.00   |                                     |
|   |                      |           | 6' power cable   | CDW                 | P006-006         | Tripp Lite Computer Power Extension Cord Adapter 10A 18AWG 5-15P to C:        | 12  |      | \$0.00   |                                     |
|   |                      |           | Cable ties   | Amazon              | 91140            | VELCRO Brand ONE-WRAP Cable Ties   100Pk   8 x 1/2" Black Cord Organizat      | 1   |      | \$0.00   |                                     |
|   |                      |           | TR Industrial Multi-Purpose UV Resistant Black Cable Ties, 8 inches, 100 Pack  | TR Industrial       | TR88302          | TR Industrial Multi-Purpose UV Resistant Black Cable Ties, 8 inches, 100 Pacl | 4   |      | \$0.00   |                                     |
|   |                      |           | TR Industrial Multi-Purpose UV Resistant Black Cable Ties, 12 inches, 100 Pack | TR Industrial       | TR88303          | TR Industrial Multi-Purpose UV Resistant Black Cable Ties, 12 inches, 100 Pa  | 4   |      | \$0.00   |                                     |
|   |                      |           | 3M Double Sided Tape   | 3M                  | 7.9387E+11       | 3M Double Sided Tape, 3M Heavy Duty Mounting Waterproof VHB Foam Tap          | 2   |      | \$0.00   |                                     |

|              |               |
|--------------|---------------|
| <b>Total</b> | <b>\$0.00</b> |
|--------------|---------------|

|    |   |               |    |                |
|----|---|---------------|----|----------------|
| 32 | Basic PDU   |               | 32 | mount to back  |
| 31 | Network Switch  |               | 31 | mount to back  |
| 30 | Server  |               | 30 |                |
| 29 |   |               | 29 |                |
| 28 |   |               | 28 |                |
| 27 |   |               | 27 |                |
| 26 | KVM   |               | 26 |                |
| 25 |   | USRP N 320 1  | 25 |                |
| 24 | USRP N 320 0  |               | 24 |                |
| 23 |   | USRP N 320 3  | 23 |                |
| 22 | USRP N 320 2  |               | 22 |                |
| 21 | OctoClock CDA-2990 Unit 1   |               | 21 | mount to back  |
| 20 | Shelf for Cables Unit 0<br>8-way Splitter Unit 0      8-way Splitter Unit 1<br>8-way Splitter Unit 2      8-way Splitter Unit 3 |               | 20 | mount to front |
| 19 |   | USRP N 320 5  | 19 |                |
| 18 | USRP N 320 4  |               | 18 |                |
| 17 |   | USRP N 320 7  | 17 |                |
| 16 | USRP N 320 6  |               | 16 |                |
| 15 | OctoClock CDA-2990 Unit 0   |               | 15 | mount to back  |
| 14 | Shelf for Cables Unit 1<br>4-way Splitter Unit 0      4-way Splitter Unit 1   |               | 14 | mount to front |
| 13 |   | USRP N 320 9  | 13 |                |
| 12 | USRP N 320 8  |               | 12 |                |
| 11 |   | USRP N 320 11 | 11 |                |
| 10 | USRP N 320 10   |               | 10 |                |
| 9  | OctoClock CDA-2990 Unit 2   |               | 9  | mount to back  |
| 8  | Shelf for Cables Unit 2<br>8-way Splitter Unit 4      8-way Splitter Unit 5<br>8-way Splitter Unit 6      8-way Splitter Unit 7 |               | 8  | mount to front |
| 7  |   | USRP N 320 13 | 7  |                |
| 6  | USRP N 320 12   |               | 6  |                |
| 5  |   | USRP N 320 15 | 5  |                |
| 4  | USRP N 320 14   |               | 4  |                |
| 3  |   |               | 3  |                |
| 2  |   |               | 2  |                |
| 1  | Switched PDU  |               | 1  | mount to back  |

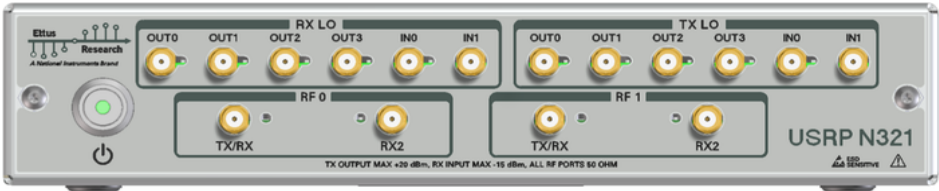
N320 front



N320 back



N321 front



N321 back



OctoClock



8-way-splitter



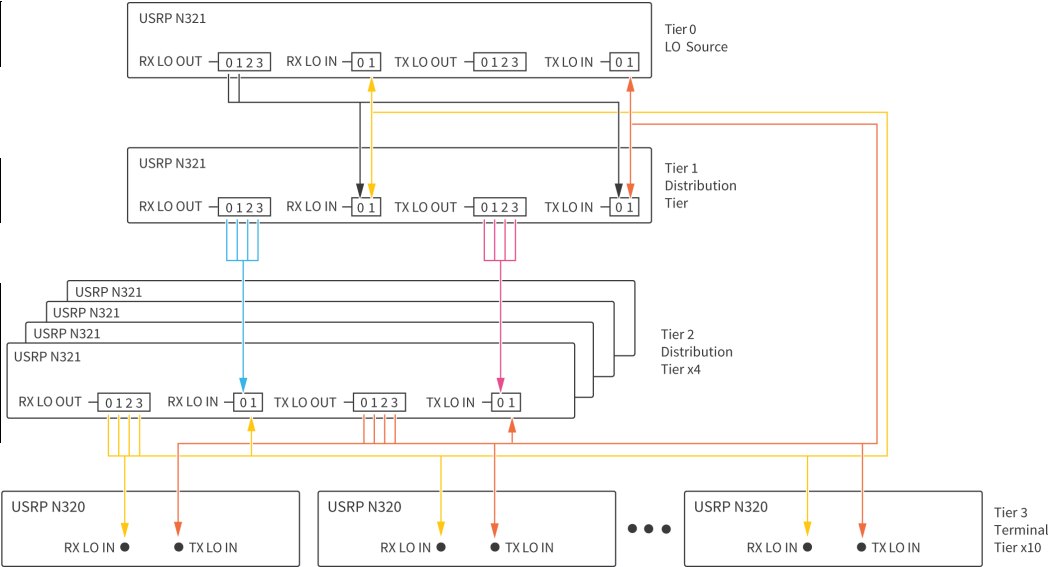
4-way-splitter



| Source | USRP | Serial # | Ethernet   | mgmt_addr   | SFP0         |
|--------|------|----------|------------|-------------|--------------|
|        | 3    |          | enp193s0f3 | 10.0.126.13 | 192.168.80.2 |

| Distribution | USRP | Serial # | Ethernet  | mgmt_addr   | SFP0         |
|--------------|------|----------|-----------|-------------|--------------|
|              | 7    |          | enp1s0fv3 | 10.0.126.20 | 192.168.20.2 |

| Distribution | USRP | Serial # | Ethernet   | mgmt_addr   | SFP0         |
|--------------|------|----------|------------|-------------|--------------|
|              | 1    |          | enp193s0f1 | 10.0.126.21 | 192.168.60.2 |
|              | 5    |          | enp1s0f1   | 10.0.126.12 | 192.168.40.2 |
|              | 9    |          | enp37s0f1  | 10.0.126.36 | 192.168.12.2 |
|              | 13   |          | enp225s0f1 | 10.0.126.32 | 192.168.16.2 |



| Terminal | USRP | Serial # | Ethernet   | mgmt_addr   | SFP0         |
|----------|------|----------|------------|-------------|--------------|
| 0        |      |          | Enp193s0f0 | 10.0.126.14 | 192.168.50.2 |
| 2        |      |          | Enp193s0f2 | 10.0.126.22 | 192.168.70.2 |
| 4        |      |          | enp1s0f0   | 10.0.126.17 | 192.168.30.2 |
| 6        |      |          | enp1s0f2   | 10.0.126.23 | 192.168.10.2 |
| 8        |      |          | enp37s0f0  | 10.0.126.35 | 192.168.11.2 |

| Terminal | USRP | Serial # | Ethernet   | mgmt_addr   | SFP0         |
|----------|------|----------|------------|-------------|--------------|
| 10       |      |          | enp37s0f2  | 10.0.126.37 | 192.168.13.2 |
| 11       |      |          | enp37s0f3  | 10.0.126.34 | 192.168.14.2 |
| 12       |      |          | enp225s0f0 | 10.0.126.30 | 192.168.15.2 |
| 14       |      |          | enp225s0f2 | 10.0.126.28 | 192.168.17.2 |
| 15       |      |          | enp225s0f3 | 10.0.126.31 | 192.168.18.2 |

| Status | Item                             | Serial Number | Rack Position |
|--------|----------------------------------|---------------|---------------|
|        | OctoClock-G CDA-2990 unit0       |               | 15            |
|        | OctoClock CDA-2990 unit1         |               | 21            |
|        | OctoClock CDA-2990 unit2         |               | 9             |
|        | USRP_N320_0                      |               | 24            |
|        | USRP_N321_1                      |               | 25            |
|        | USRP_N320_2                      |               | 22            |
|        | USRP_N321_3                      |               | 23            |
|        | USRP_N320_4                      |               | 18            |
|        | USRP_N321_5                      |               | 19            |
|        | USRP_N320_6                      |               | 16            |
|        | USRP_N321_7                      |               | 17            |
|        | USRP_N320_8                      |               | 12            |
|        | USRP_N321_9                      |               | 13            |
|        | USRP_N320_10                     |               | 10            |
|        | USRP_N320_11                     |               | 11            |
|        | USRP_N320_12                     |               | 6             |
|        | USRP_N321_13                     |               | 7             |
|        | USRP_N320_14                     |               | 4             |
|        | USRP_N320_15                     |               | 5             |
|        | Server                           |               | 27,28,29,30   |
|        | Network Switch                   |               | 31            |
|        | Basic Power Distribution Unit    |               | 32            |
|        | Switched Power Distribution Unit |               | 3             |
|        | KVM Rack Console                 |               | 26            |
|        | APC rack shelf unit0             | N/A           | 20            |
|        | APC rack shelf unit1             | N/A           | 14            |
|        | APC rack shelf unit2             | N/A           | 8             |
|        | 8-way power splitter unit 0      | N/A           | 20            |
|        | 8-way power splitter unit 1      | N/A           | 20            |
|        | 8-way power splitter unit 2      | N/A           | 20            |
|        | 8-way power splitter unit 3      | N/A           | 20            |
|        | 8-way power splitter unit 4      | N/A           | 8             |
|        | 8-way power splitter unit 5      | N/A           | 8             |
|        | 8-way power splitter unit 6      | N/A           | 8             |
|        | 8-way power splitter unit 7      | N/A           | 8             |
|        | 4-way power splitter unit 0      | N/A           | 14            |
|        | 4-way power splitter unit 1      | N/A           | 14            |

| Connections |            |   |               |        |
|-------------|------------|---|---------------|--------|
| From        |            |   | To            |        |
| Device      | Port       | → | Device        | Port   |
| octo0       | 10M_in     | → | NC            | NC     |
| octo0       | PPS_in     | → | NC            | NC     |
| octo0       | GPS_ant    | → | NC            | NC     |
| octo0       | REF_switch | → | SET TO GPSDO  |        |
| octo0       | 10M_1      | → | octo1         | 10M_in |
| octo0       | 10M_2      | → | octo2         | 10M_in |
| octo0       | 10M_3      | → | NC            | NC     |
| octo0       | 10M_4      | → | NC            | NC     |
| octo0       | 10M_5      | → | NC            | NC     |
| octo0       | 10M_6      | → | NC            | NC     |
| octo0       | 10M_7      | → | NC            | NC     |
| octo0       | 10M_8      | → | NC            | NC     |
| octo0       | PPS_1      | → | octo1         | PPS_in |
| octo0       | PPS_2      | → | octo2         | PPS_in |
| octo0       | PPS_3      | → | NC            | NC     |
| octo0       | PPS_4      | → | NC            | NC     |
| octo0       | PPS_5      | → | NC            | NC     |
| octo0       | PPS_6      | → | NC            | NC     |
| octo0       | PPS_7      | → | NC            | NC     |
| octo0       | PPS_8      | → | NC            | NC     |
| octo0       | ntwrk      | → | NC            | NC     |
| octo1       | 10M_in     | → | octo0         | 10M_1  |
| octo1       | PPS_in     | → | octo0         | PPS_1  |
| octo1       | GPS_ant    | → | NC            | NC     |
| octo1       | REF_switch | → | SET TO Ref In |        |
| octo1       | 10M_1      | → | usrp0         | ref in |
| octo1       | 10M_2      | → | usrp1         | ref in |
| octo1       | 10M_3      | → | usrp2         | ref in |
| octo1       | 10M_4      | → | usrp3         | ref in |
| octo1       | 10M_5      | → | usrp4         | ref in |
| octo1       | 10M_6      | → | usrp5         | ref in |
| octo1       | 10M_7      | → | usrp6         | ref in |
| octo1       | 10M_8      | → | usrp7         | ref in |
| octo1       | PPS_1      | → | usrp0         | pps in |
| octo1       | PPS_2      | → | usrp1         | pps in |
| octo1       | PPS_3      | → | usrp2         | pps in |

## Wiring List

# Wiring List

| Connections |            |   |               |        |
|-------------|------------|---|---------------|--------|
| From        |            |   | To            |        |
| Device      | Port       | → | Device        | Port   |
| octo1       | PPS_4      | → | usrp3         | pps in |
| octo1       | PPS_5      | → | usrp4         | pps in |
| octo1       | PPS_6      | → | usrp5         | pps in |
| octo1       | PPS_7      | → | usrp6         | pps in |
| octo1       | PPS_8      | → | usrp7         | pps in |
| octo1       | ntwrk      | → | NC            | NC     |
| octo2       | 10M_in     | → | octo0         | 10M_2  |
| octo2       | PPS_in     | → | octo0         | PPS_2  |
| octo2       | GPS_ant    | → | NC            | NC     |
| octo2       | REF_switch | → | SET TO Ref In |        |
| octo2       | 10M_1      | → | usrp8         | ref in |
| octo2       | 10M_2      | → | usrp9         | ref in |
| octo2       | 10M_3      | → | usrp10        | ref in |
| octo2       | 10M_4      | → | usrp11        | ref in |
| octo2       | 10M_5      | → | usrp12        | ref in |
| octo2       | 10M_6      | → | usrp13        | ref in |
| octo2       | 10M_7      | → | usrp14        | ref in |
| octo2       | 10M_8      | → | usrp15        | ref in |
| octo2       | PPS_1      | → | usrp8         | pps in |
| octo2       | PPS_2      | → | usrp9         | pps in |
| octo2       | PPS_3      | → | usrp10        | pps in |
| octo2       | PPS_4      | → | usrp11        | pps in |
| octo2       | PPS_5      | → | usrp12        | pps in |
| octo2       | PPS_6      | → | usrp13        | pps in |
| octo2       | PPS_7      | → | usrp14        | pps in |
| octo2       | PPS_8      | → | usrp15        | pps in |
| octo2       | ntwrk      | → | NC            | NC     |

|       |           |   |        |           |
|-------|-----------|---|--------|-----------|
| usrp0 | rf0:tx/rx | → | 8way0  | Port0     |
| usrp0 | rf1:tx/rx | → | 8way0  | Port1     |
| usrp0 | rf0:rx    | → | 8way4  | Port0     |
| usrp0 | rf1:rx    | → | 8way4  | Port1     |
| usrp0 | loin:tx   | → | usrp1  | txlo:out0 |
| usrp0 | loin:rx   | → | usrp1  | rxlo:out0 |
| usrp0 | ntwrk     | → | N_Swch | port0     |
| usrp0 | ref in    | → | octo1  | 10M_1     |
| usrp0 | pps in    | → | octo1  | PPS_1     |
| usrp0 | SFP+0     | → | Server | port0     |
| usrp0 | SFP+1     | → | NC     | NC        |
| usrp1 | rxlo:out0 | → | usrp0  | rxlo:in1  |
| usrp1 | rxlo:out1 | → | usrp1  | rxlo:in1  |
| usrp1 | rxlo:out2 | → | usrp2  | rxlo:in1  |
| usrp1 | rxlo:out3 | → | usrp3  | rxlo:in1  |
| usrp1 | rxlo:in0  | → | usrp7  | rxlo:out0 |
| usrp1 | rxlo:in1  | → | usrp1  | rxlo:out1 |
| usrp1 | txlo:out0 | → | usrp0  | txlo:in1  |
| usrp1 | txlo:out1 | → | usrp1  | txlo:in1  |
| usrp1 | txlo:out2 | → | usrp2  | txlo:in1  |
| usrp1 | txlo:out3 | → | usrp3  | txlo:in1  |
| usrp1 | txlo:in0  | → | usrp7  | txlo:out0 |
| usrp1 | txlo:in1  | → | usrp1  | txlo:out1 |
| usrp1 | rf0:tx/rx | → | 8way0  | port7     |

# Wiring List

| Connections |           |   |        |           |
|-------------|-----------|---|--------|-----------|
| From        |           |   | To     |           |
| Device      | Port      | → | Device | Port      |
| usrp1       | rf1:tx/rx | → | 8way0  | port8     |
| usrp1       | rf0:rx    | → | 8way4  | port7     |
| usrp1       | rf1:rx    | → | 8way4  | port8     |
| usrp1       | ntwrk     | → | N_Swch | port1     |
| usrp1       | ref in    | → | octo1  | 10M_2     |
| usrp1       | pps in    | → | octo1  | PPS_2     |
| usrp1       | SFP+0     | → | Server | port1     |
| usrp1       | SFP+1     | → | NC     | NC        |
| usrp2       | rf0:tx/rx | → | 8way0  | port2     |
| usrp2       | rf1:tx/rx | → | 8way0  | port3     |
| usrp2       | rf0:rx    | → | 8way4  | port2     |
| usrp2       | rf1:rx    | → | 8way4  | port3     |
| usrp2       | loin:tx   | → | usrp1  | txlo:out2 |
| usrp2       | loin:rx   | → | usrp1  | rxlo:out2 |
| usrp2       | ntwrk     | → | N_Swch | Port2     |
| usrp2       | ref in    | → | octo1  | 10M_3     |
| usrp2       | pps in    | → | octo1  | PPS_2     |
| usrp2       | SFP+0     | → | Server | port1     |
| usrp2       | SFP+1     | → | NC     | NC        |
| usrp3       | rxlo:out0 | → | usrp7  | rxlo:in1  |
| usrp3       | rxlo:out1 | → | usrp7  | txlo:in1  |
| usrp3       | rxlo:out2 | → | NC     | NC        |
| usrp3       | rxlo:out3 | → | NC     | NC        |
| usrp3       | rxlo:in0  | → | NC     | NC        |
| usrp3       | rxlo:in1  | → | usrp1  | rxlo:out3 |
| usrp3       | txlo:out0 | → | NC     | NC        |
| usrp3       | txlo:out1 | → | NC     | NC        |
| usrp3       | txlo:out2 | → | NC     | NC        |
| usrp3       | txlo:out3 | → | NC     | NC        |
| usrp3       | txlo:in0  | → | NC     | NC        |
| usrp3       | txlo:in1  | → | usrp1  | txlo:out3 |
| usrp3       | rf0:tx/rx | → | 8way0  | port5     |
| usrp3       | rf1:tx/rx | → | 8way0  | port6     |
| usrp3       | rf0:rx    | → | 8way4  | port5     |
| usrp3       | rf1:rx    | → | 8way4  | port6     |
| usrp3       | ntwrk     | → | N_Swch | Port3     |
| usrp3       | ref in    | → | octo1  | 10M_4     |
| usrp3       | pps in    | → | octo1  | PPS_4     |
| usrp3       | SFP+0     | → | Server | port3     |
| usrp3       | SFP+1     | → | NC     | NC        |

|       |           |   |        |           |
|-------|-----------|---|--------|-----------|
| usrp4 | rf0:tx/rx | → | 8way1  | Port4     |
| usrp4 | rf1:tx/rx | → | 8way1  | Port1     |
| usrp4 | rf0:rx    | → | 8way5  | Port0     |
| usrp4 | rf1:rx    | → | 8way5  | Port1     |
| usrp4 | loin:tx   | → | usrp5  | txlo:out0 |
| usrp4 | loin:rx   | → | usrp5  | rxlo:out0 |
| usrp4 | ntwrk     | → | N_Swch | port4     |
| usrp4 | ref in    | → | octo1  | 10M_5     |
| usrp4 | pps in    | → | octo1  | PPS_5     |
| usrp4 | SFP+0     | → | Server | port4     |
| usrp4 | SFP+1     | → | NC     | NC        |



| Connections |           |   |        |           |
|-------------|-----------|---|--------|-----------|
| From        |           |   | To     |           |
| Device      | Port      | → | Device | Port      |
| usrp5       | rxlo:out0 | → | usrp4  | rxlo:in1  |
| usrp5       | rxlo:out1 | → | usrp5  | rxlo:in1  |
| usrp5       | rxlo:out2 | → | usrp6  | rxlo:in1  |
| usrp5       | rxlo:out3 | → | usrp7  | rxlo:in1  |
| usrp5       | rxlo:in0  | → | usrp7  | rxlo:out0 |
| usrp5       | rxlo:in1  | → | usrp5  | rxlo:out1 |
| usrp5       | txlo:out0 | → | usrp4  | txlo:in1  |
| usrp5       | txlo:out1 | → | usrp5  | txlo:in1  |
| usrp5       | txlo:out2 | → | usrp6  | txlo:in1  |
| usrp5       | txlo:out3 | → | usrp7  | txlo:in1  |
| usrp5       | txlo:in0  | → | usrp7  | txlo:out0 |
| usrp5       | txlo:in1  | → | usrp5  | txlo:out1 |
| usrp5       | rf0:tx/rx | → | 8way1  | port7     |
| usrp5       | rf1:tx/rx | → | 8way1  | port8     |
| usrp5       | rf0:rx    | → | 8way5  | port7     |
| usrp5       | rf1:rx    | → | 8way5  | port8     |
| usrp5       | ntwrk     | → | N_Swch | port5     |
| usrp5       | ref in    | → | octo1  | 10M_6     |
| usrp5       | pps in    | → | octo1  | PPS_6     |
| usrp5       | SFP+0     | → | Server | port5     |
| usrp5       | SFP+1     | → | NC     | NC        |
| usrp6       | rf0:tx/rx | → | 8way1  | port2     |
| usrp6       | rf1:tx/rx | → | 8way1  | port3     |
| usrp6       | rf0:rx    | → | 8way5  | port2     |
| usrp6       | rf1:rx    | → | 8way5  | port3     |
| usrp6       | loin:tx   | → | usrp5  | txlo:out2 |
| usrp6       | loin:rx   | → | usrp5  | rxlo:out2 |
| usrp6       | ntwrk     | → | N_Swch | Port6     |
| usrp6       | ref in    | → | octo1  | 10M_7     |
| usrp6       | pps in    | → | octo1  | PPS_7     |
| usrp6       | SFP+0     | → | Server | port6     |
| usrp6       | SFP+1     | → | NC     | NC        |
| usrp7       | rxlo:out0 | → | usrp1  | rxlo:in0  |
| usrp7       | rxlo:out1 | → | usrp5  | rxlo:in0  |
| usrp7       | rxlo:out2 | → | usrp9  | rxlo:in0  |
| usrp7       | rxlo:out3 | → | usrp11 | rxlo:in0  |
| usrp7       | rxlo:in0  | → | usrp3  | rxlo:out0 |
| usrp7       | rxlo:in1  | → | usrp5  | txlo:in0  |
| usrp7       | txlo:out0 | → | usrp1  | txlo:in0  |
| usrp7       | txlo:out1 | → | usrp5  | txlo:in0  |
| usrp7       | txlo:out2 | → | usrp9  | txlo:in0  |
| usrp7       | txlo:out3 | → | usrp11 | txlo:in0  |
| usrp7       | txlo:in0  | → | usrp3  | rxlo:out1 |
| usrp7       | txlo:in1  | → | usrp5  | txlo:out3 |
| usrp7       | rf0:tx/rx | → | 8way1  | port5     |
| usrp7       | rf1:tx/rx | → | 8way1  | port6     |
| usrp7       | rf0:rx    | → | 8way5  | port5     |
| usrp7       | rf1:rx    | → | 8way5  | port6     |
| usrp7       | ntwrk     | → | N_Swch | Port7     |
| usrp7       | ref in    | → | octo1  | 10M_8     |
| usrp7       | pps in    | → | octo1  | PPS_8     |
| usrp7       | SFP+0     | → | Server | port7     |

## Wiring List

| Connections |       |   |        |      |
|-------------|-------|---|--------|------|
| From        |       |   | To     |      |
| Device      | Port  | → | Device | Port |
| usrp7       | SFP+1 | → | NC     | NC   |

## Wiring List

|        |           |   |        |           |
|--------|-----------|---|--------|-----------|
| usrp8  | rf0:tx/rx | → | 8way2  | Port4     |
| usrp8  | rf1:tx/rx | → | 8way2  | Port1     |
| usrp8  | rf0:rx    | → | 8way6  | Port0     |
| usrp8  | rf1:rx    | → | 8way6  | Port1     |
| usrp8  | loin:tx   | → | usrp9  | txlo:out0 |
| usrp8  | loin:rx   | → | usrp9  | rxlo:out0 |
| usrp8  | ntwrk     | → | N_Swch | port8     |
| usrp8  | ref in    | → | octo2  | 10M_1     |
| usrp8  | pps in    | → | octo2  | PPS_1     |
| usrp8  | SFP+0     | → | Server | port8     |
| usrp8  | SFP+1     | → | NC     | NC        |
| usrp9  | rxlo:out0 | → | usrp8  | rxlo:in1  |
| usrp9  | rxlo:out1 | → | usrp9  | rxlo:in1  |
| usrp9  | rxlo:out2 | → | usrp10 | rxlo:in1  |
| usrp9  | rxlo:out3 | → | usrp11 | rxlo:in1  |
| usrp9  | rxlo:in0  | → | usrp7  | rxlo:out0 |
| usrp9  | rxlo:in1  | → | usrp9  | rxlo:out1 |
| usrp9  | txlo:out0 | → | usrp8  | txlo:in1  |
| usrp9  | txlo:out1 | → | usrp9  | txlo:in1  |
| usrp9  | txlo:out2 | → | usrp10 | txlo:in1  |
| usrp9  | txlo:out3 | → | usrp11 | txlo:in1  |
| usrp9  | txlo:in0  | → | usrp7  | txlo:out0 |
| usrp9  | txlo:in1  | → | usrp9  | txlo:out1 |
| usrp9  | rf0:tx/rx | → | 8way2  | port7     |
| usrp9  | rf1:tx/rx | → | 8way2  | port8     |
| usrp9  | rf0:rx    | → | 8way6  | port7     |
| usrp9  | rf1:rx    | → | 8way6  | port8     |
| usrp9  | ntwrk     | → | N_Swch | port9     |
| usrp9  | ref in    | → | octo2  | 10M_2     |
| usrp9  | pps in    | → | octo2  | PPS_2     |
| usrp9  | SFP+0     | → | Server | port9     |
| usrp9  | SFP+1     | → | NC     | NC        |
| usrp10 | rf0:tx/rx | → | 8way2  | port2     |
| usrp10 | rf1:tx/rx | → | 8way2  | port3     |
| usrp10 | rf0:rx    | → | 8way6  | port2     |
| usrp10 | rf1:rx    | → | 8way6  | port3     |
| usrp10 | loin:tx   | → | usrp9  | txlo:out2 |
| usrp10 | loin:rx   | → | usrp9  | rxlo:out2 |
| usrp10 | ntwrk     | → | N_Swch | Port10    |
| usrp10 | ref in    | → | octo2  | 10M_3     |
| usrp10 | pps in    | → | octo2  | PPS_3     |
| usrp10 | SFP+0     | → | Server | Port10    |
| usrp10 | SFP+1     | → | NC     | NC        |
| usrp11 | rf0:tx/rx | → | 8way2  | port2     |
| usrp11 | rf1:tx/rx | → | 8way2  | port3     |
| usrp11 | rf0:rx    | → | 8way6  | port2     |
| usrp11 | rf1:rx    | → | 8way6  | port3     |
| usrp11 | loin:tx   | → | usrp9  | txlo:out2 |
| usrp11 | loin:rx   | → | usrp9  | rxlo:out2 |
| usrp11 | ntwrk     | → | N_Swch | Port11    |

| Connections |        |   |        |        |
|-------------|--------|---|--------|--------|
| From        |        |   | To     |        |
| Device      | Port   | → | Device | Port   |
| usrp11      | ref in | → | octo2  | 10M_4  |
| usrp11      | pps in | → | octo2  | PPS_4  |
| usrp11      | SFP+0  | → | Server | port11 |
| usrp11      | SFP+1  | → | NC     | NC     |

## Wiring List

|        |           |   |        |           |
|--------|-----------|---|--------|-----------|
| usrp12 | rf0:tx/rx | → | 8way3  | Port4     |
| usrp12 | rf1:tx/rx | → | 8way3  | Port1     |
| usrp12 | rf0:rx    | → | 8way7  | Port0     |
| usrp12 | rf1:rx    | → | 8way7  | Port1     |
| usrp12 | loin:tx   | → | usrp13 | txlo:out0 |
| usrp12 | loin:rx   | → | usrp13 | rxlo:out0 |
| usrp12 | ntwrk     | → | N_Swch | port12    |
| usrp12 | ref in    | → | octo2  | 10M_5     |
| usrp12 | pps in    | → | octo2  | PPS_5     |
| usrp12 | SFP+0     | → | Server | port12    |
| usrp12 | SFP+1     | → | NC     | NC        |
| usrp13 | rxlo:out0 | → | usrp12 | rxlo:in1  |
| usrp13 | rxlo:out1 | → | usrp13 | rxlo:in1  |
| usrp13 | rxlo:out2 | → | usrp14 | rxlo:in1  |
| usrp13 | rxlo:out3 | → | usrp15 | rxlo:in1  |
| usrp13 | rxlo:in0  | → | usrp7  | rxlo:out0 |
| usrp13 | rxlo:in1  | → | usrp13 | rxlo:out1 |
| usrp13 | txlo:out0 | → | usrp12 | txlo:in1  |
| usrp13 | txlo:out1 | → | usrp13 | txlo:in1  |
| usrp13 | txlo:out2 | → | usrp14 | txlo:in1  |
| usrp13 | txlo:out3 | → | usrp15 | txlo:in1  |
| usrp13 | txlo:in0  | → | usrp7  | txlo:out0 |
| usrp13 | txlo:in1  | → | usrp13 | txlo:out1 |
| usrp13 | rf0:tx/rx | → | 8way3  | port7     |
| usrp13 | rf1:tx/rx | → | 8way3  | port8     |
| usrp13 | rf0:rx    | → | 8way7  | port7     |
| usrp13 | rf1:rx    | → | 8way7  | port8     |
| usrp13 | ntwrk     | → | N_Swch | port13    |
| usrp13 | ref in    | → | octo2  | 10M_6     |
| usrp13 | pps in    | → | octo2  | PPS_6     |
| usrp13 | SFP+0     | → | Server | port13    |
| usrp13 | SFP+1     | → | NC     | NC        |
| usrp14 | rf0:tx/rx | → | 8way3  | port2     |
| usrp14 | rf1:tx/rx | → | 8way3  | port3     |
| usrp14 | rf0:rx    | → | 8way7  | port2     |
| usrp14 | rf1:rx    | → | 8way7  | port3     |
| usrp14 | loin:tx   | → | usrp13 | txlo:out2 |
| usrp14 | loin:rx   | → | usrp13 | rxlo:out2 |
| usrp14 | ntwrk     | → | N_Swch | Port14    |
| usrp14 | ref in    | → | octo2  | 10M_7     |
| usrp14 | pps in    | → | octo2  | PPS_7     |
| usrp14 | SFP+0     | → | Server | port14    |
| usrp14 | SFP+1     | → | NC     | NC        |
| usrp15 | rf0:tx/rx | → | 8way3  | port2     |
| usrp15 | rf1:tx/rx | → | 8way3  | port3     |
| usrp15 | rf0:rx    | → | 8way7  | port2     |
| usrp15 | rf1:rx    | → | 8way7  | port3     |

| Connections |         |   |        |           |
|-------------|---------|---|--------|-----------|
| From        |         |   | To     |           |
| Device      | Port    | → | Device | Port      |
| usrp15      | loin:tx | → | usrp13 | txlo:out2 |
| usrp15      | loin:rx | → | usrp13 | rxlo:out2 |
| usrp15      | ntwrk   | → | N_Swch | Port15    |
| usrp15      | refin   | → | octo2  | 10M_8     |
| usrp15      | pps in  | → | octo2  | PPS_8     |
| usrp15      | SFP+0   | → | Server | port15    |
| usrp15      | SFP+1   | → | NC     | NC        |

## Wiring List

|       |            |   |        |           |
|-------|------------|---|--------|-----------|
| 8way0 | port0      | → | usrp0  | rf0:tx/rx |
| 8way0 | port1      | → | usrp0  | rf1:tx/rx |
| 8way0 | port2      | → | usrp1  | rf0:tx/rx |
| 8way0 | port3      | → | usrp1  | rf1:tx/rx |
| 8way0 | port4(sum) | → | 4way0  | port0     |
| 8way0 | port5      | → | usrp2  | rf0:tx/rx |
| 8way0 | port6      | → | usrp2  | rf1:tx/rx |
| 8way0 | port7      | → | usrp3  | rf0:tx/rx |
| 8way0 | port8      | → | usrp3  | rf1:tx/rx |
| 8way1 | port0      | → | usrp4  | rf0:tx/rx |
| 8way1 | port1      | → | usrp4  | rf1:tx/rx |
| 8way1 | port2      | → | usrp5  | rf0:tx/rx |
| 8way1 | port3      | → | usrp5  | rf1:tx/rx |
| 8way1 | port4(sum) | → | 4way0  | port1     |
| 8way1 | port5      | → | usrp6  | rf0:tx/rx |
| 8way1 | port6      | → | usrp6  | rf1:tx/rx |
| 8way1 | port7      | → | usrp7  | rf0:tx/rx |
| 8way1 | port8      | → | usrp7  | rf1:tx/rx |
| 8way2 | port0      | → | usrp8  | rf0:tx/rx |
| 8way2 | port1      | → | usrp8  | rf1:tx/rx |
| 8way2 | port2      | → | usrp9  | rf0:tx/rx |
| 8way2 | port3      | → | usrp9  | rf1:tx/rx |
| 8way2 | port4(sum) | → | 4way0  | port3     |
| 8way2 | port5      | → | usrp10 | rf0:tx/rx |
| 8way2 | port6      | → | usrp10 | rf1:tx/rx |
| 8way2 | port7      | → | usrp11 | rf0:tx/rx |
| 8way2 | port8      | → | usrp11 | rf1:tx/rx |
| 8way3 | port0      | → | usrp12 | rf0:tx/rx |
| 8way3 | port1      | → | usrp12 | rf1:tx/rx |
| 8way3 | port2      | → | usrp13 | rf0:tx/rx |
| 8way3 | port3      | → | usrp13 | rf1:tx/rx |
| 8way3 | port4(sum) | → | 4way0  | port4     |
| 8way3 | port5      | → | usrp14 | rf0:tx/rx |
| 8way3 | port6      | → | usrp14 | rf1:tx/rx |
| 8way3 | port7      | → | usrp15 | rf0:tx/rx |
| 8way3 | port8      | → | usrp15 | rf1:tx/rx |

|       |            |   |       |        |
|-------|------------|---|-------|--------|
| 8way4 | port0      | → | usrp0 | rf0:rx |
| 8way4 | port1      | → | usrp0 | rf1:rx |
| 8way4 | port2      | → | usrp1 | rf0:rx |
| 8way4 | port3      | → | usrp1 | rf1:rx |
| 8way4 | port4(sum) | → | 4way1 | port0  |

| Connections |            |   |        |        |
|-------------|------------|---|--------|--------|
| From        |            |   | To     |        |
| Device      | Port       | → | Device | Port   |
| 8way4       | port5      | → | usrp2  | rf0:rx |
| 8way4       | port6      | → | usrp2  | rf1:rx |
| 8way4       | port7      | → | usrp3  | rf0:rx |
| 8way4       | port8      | → | usrp3  | rf1:rx |
| 8way5       | port0      | → | usrp4  | rf0:rx |
| 8way5       | port1      | → | usrp4  | rf1:rx |
| 8way5       | port2      | → | usrp5  | rf0:rx |
| 8way5       | port3      | → | usrp5  | rf1:rx |
| 8way5       | port4(sum) | → | 4way1  | port1  |
| 8way5       | port5      | → | usrp6  | rf0:rx |
| 8way5       | port6      | → | usrp6  | rf1:rx |
| 8way5       | port7      | → | usrp7  | rf0:rx |
| 8way5       | port8      | → | usrp7  | rf1:rx |
| 8way6       | port0      | → | usrp8  | rf0:rx |
| 8way6       | port1      | → | usrp8  | rf1:rx |
| 8way6       | port2      | → | usrp9  | rf0:rx |
| 8way6       | port3      | → | usrp9  | rf1:rx |
| 8way6       | port4(sum) | → | 4way1  | port3  |
| 8way6       | port5      | → | usrp10 | rf0:rx |
| 8way6       | port6      | → | usrp10 | rf1:rx |
| 8way6       | port7      | → | usrp11 | rf0:rx |
| 8way6       | port8      | → | usrp11 | rf1:rx |
| 8way7       | port0      | → | usrp12 | rf0:rx |
| 8way7       | port1      | → | usrp12 | rf1:rx |
| 8way7       | port2      | → | usrp13 | rf0:rx |
| 8way7       | port3      | → | usrp13 | rf1:rx |
| 8way7       | port4(sum) | → | 4way1  | port4  |
| 8way7       | port5      | → | usrp14 | rf0:rx |
| 8way7       | port6      | → | usrp14 | rf1:rx |
| 8way7       | port7      | → | usrp15 | rf0:rx |
| 8way7       | port8      | → | usrp15 | rf1:rx |

|       |            |   |       |            |
|-------|------------|---|-------|------------|
| 4way0 | port0      | → | 8way0 | port4(sum) |
| 4way0 | port1      | → | 8way1 | port4(sum) |
| 4way0 | port2(sum) | → | 4way1 | port2(sum) |
| 4way0 | port3      | → | 8way2 | port4(sum) |
| 4way0 | port4      | → | 8way3 | port4(sum) |
| 4way1 | port0      | → | 8way4 | port4(sum) |
| 4way1 | port1      | → | 8way5 | port4(sum) |
| 4way1 | port2(sum) | → | 4way0 | port2(sum) |
| 4way1 | port3      | → | 8way6 | port4(sum) |
| 4way1 | port4      | → | 8way7 | port4(sum) |

|        |       |   |       |       |
|--------|-------|---|-------|-------|
| N_Swch | port0 | → | usrp0 | ntwrk |
| N_Swch | port1 | → | usrp1 | ntwrk |
| N_Swch | port2 | → | usrp2 | ntwrk |
| N_Swch | port3 | → | usrp3 | ntwrk |
| N_Swch | port4 | → | usrp4 | ntwrk |
| N_Swch | port5 | → | usrp5 | ntwrk |
| N_Swch | port6 | → | usrp6 | ntwrk |
| N_Swch | port7 | → | usrp7 | ntwrk |

## Wiring List

| Connections |        |   |        |       |
|-------------|--------|---|--------|-------|
| From        |        |   | To     |       |
| Device      | Port   | → | Device | Port  |
| N_Swch      | port8  | → | usrp8  | ntwrk |
| N_Swch      | port9  | → | usrp9  | ntwrk |
| N_Swch      | port10 | → | usrp10 | ntwrk |
| N_Swch      | port11 | → | usrp11 | ntwrk |
| N_Swch      | port12 | → | usrp12 | ntwrk |
| N_Swch      | port13 | → | usrp13 | ntwrk |
| N_Swch      | port14 | → | usrp14 | ntwrk |
| N_Swch      | port15 | → | usrp15 | ntwrk |

Wiring List

|        |        |   |        |       |
|--------|--------|---|--------|-------|
| Server | port0  | → | usrp0  | Sfp+0 |
| Server | port1  | → | usrp1  | Sfp+0 |
| Server | port2  | → | usrp2  | Sfp+0 |
| Server | port3  | → | usrp3  | Sfp+0 |
| Server | port4  | → | usrp4  | Sfp+0 |
| Server | port5  | → | usrp5  | Sfp+0 |
| Server | port6  | → | usrp6  | Sfp+0 |
| Server | port7  | → | usrp7  | Sfp+0 |
| Server | port8  | → | usrp8  | Sfp+0 |
| Server | port9  | → | usrp9  | Sfp+0 |
| Server | port10 | → | usrp10 | Sfp+0 |
| Server | port11 | → | usrp11 | Sfp+0 |
| Server | port12 | → | usrp12 | Sfp+0 |
| Server | port13 | → | usrp13 | Sfp+0 |
| Server | port14 | → | usrp14 | Sfp+0 |
| Server | port15 | → | usrp15 | Sfp+0 |

| Name Reference |                                      |
|----------------|--------------------------------------|
| Device Name    | Device Type                          |
| octo0          | <a href="#">octoclock-G CDA-2990</a> |
| octo1          | <a href="#">octoclock-G CDA-2990</a> |
| octo2          | <a href="#">octoclock-G CDA-2990</a> |
| usrp0          | <a href="#">USRP N320</a>            |
| usrp1          | <a href="#">USRP N321</a>            |
| usrp2          | <a href="#">USRP N320</a>            |
| usrp3          | <a href="#">USRP N321</a>            |
| usrp4          | <a href="#">USRP N320</a>            |
| usrp5          | <a href="#">USRP N321</a>            |
| usrp6          | <a href="#">USRP N320</a>            |
| usrp7          | <a href="#">USRP N321</a>            |
| usrp8          | <a href="#">USRP N320</a>            |
| usrp9          | <a href="#">USRP N321</a>            |
| usrp10         | <a href="#">USRP N320</a>            |
| usrp11         | <a href="#">USRP N320</a>            |
| usrp12         | <a href="#">USRP N320</a>            |
| usrp13         | <a href="#">USRP N321</a>            |
| usrp14         | <a href="#">USRP N320</a>            |
| usrp15         | <a href="#">USRP N320</a>            |
| 8way0          | <a href="#">8 way power splitter</a> |
| 8way1          | <a href="#">8 way power splitter</a> |
| 8way2          | <a href="#">8 way power splitter</a> |
| 8way3          | <a href="#">8 way power splitter</a> |
| 8way4          | <a href="#">8 way power splitter</a> |
| 8way5          | <a href="#">8 way power splitter</a> |
| 8way6          | <a href="#">8 way power splitter</a> |
| 8way7          | <a href="#">8 way power splitter</a> |
| 4way0          | <a href="#">4 way power splitter</a> |
| 4way1          | <a href="#">4 way power splitter</a> |
| N_Swch         | <a href="#">Network Switch</a>       |

## Wiring List