Osmocom BTS Hardware Support

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Classic E1/T1 based BTS

Supported Vendors/Dialects

- Siemens (only BS-11 tested)
- Ericsson RBS2xxx (RBS2307, 2308, 2111 tested)
- Nokia InSite, MetroSite

<table>
<thead>
<tr>
<th>Pro</th>
<th>Con</th>
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<tbody>
<tr>
<td>available inexpensively from decommissioned sites</td>
<td>appears a bit antiquated</td>
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<tr>
<td>up to 12 TRX</td>
<td>not many people familiar with E1/T1 anymore</td>
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<tr>
<td>high RF output power</td>
<td>no convenient testing/debugging of E1/T1 issues</td>
</tr>
<tr>
<td>rugged mechanical build, high MTTF</td>
<td>high power consumption</td>
</tr>
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<td></td>
<td>older models no EGPRS, no AMR</td>
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Classic E1/T1 based BTS
Clasic E1/T1 based BTS

- This is how it all started
- E1 based BTS (Siemens BS-11)
- HAR 2009 - Dutch Hacker Camp
- Antennas mounted with duct tape to tree
- E1 back-haul over CAT5 to OpenBSC running in tent
Ericsson RBS 2308

- Many RBS2000 models
- All very similar on protocol
- Not all models tested
- Good results with RBS2308 + RBS2111
PoE-enabled single-TRX 200mW indoor BTS
GPRS/GSM only models and EGPRS-enabled models
available in band-specific versions for all four bands
proprietary BTS and PCU inside
- lots of PCU crashes reported by users :(
- no way for us to fix it
No fully dynamic channels (TCH/F + TCH/H + PDCH)
**sysmoBTS**

- sysmocom builds family of GSM BTS based on OsmoBTS + OsmoPCU
- revenue from this sales used to cross-subsidize OsmoBTS development
- **osmo-bts-sy smo** uses shared-memory /dev to talk to PHY 
- **osmo-pcu** uses shared-memory /dev to talk to PHY

<table>
<thead>
<tr>
<th>Model</th>
<th>RF Pwr</th>
<th>TRX</th>
<th>Outdoor</th>
<th>PoE</th>
<th>Quad-Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>sysmoBTS 1002</td>
<td>0.2 W</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>sysmoBTS 1002 OD</td>
<td>0.2 W</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>sysmoBTS 1020</td>
<td>2.0 W</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>sysmoBTS 1100</td>
<td>10.0 W</td>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>sysmoBTS 2050</td>
<td>2x 5 W</td>
<td>2</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>sysmoBTS 2100</td>
<td>2x10 W</td>
<td>2</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Nuran LiteCell 1.5

- 10W 2-TRX Outdoor BTS
- `osmo-bts-litecell15` uses shared-memory /dev to talk to PHY
- `osmo-pcu` uses shared-memory /dev to talk to PHY
Octasic OCTBTS with OCTPHY-2G

- not a ready-to-deploy BTS product, more a BTS development board
  - no enclosure, no PA, no filters
- proprietary PHY runs in Octasic DSP
  - raw Ethernet frames towards `osmo-bts-octphy`
  - unix domain pcu-socket to `osmo-pcu`
- series of different board models (3000, 3500, 3600) with different number of DSPs, radio interfaces, ARM/x86 processor core
- two TRX per DSP possible
- not all voice codecs supported
- EGRPS integration with OsmoPCU not working yet
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