# Osmocom BTS Hardware Support

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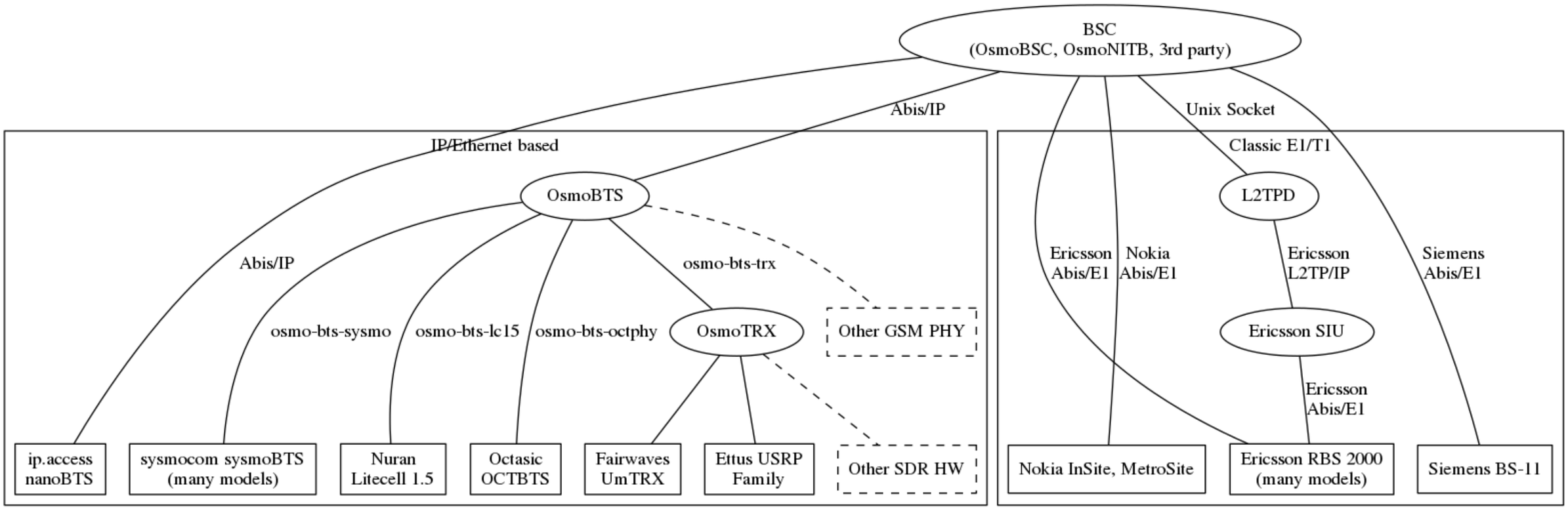
# Overview


BSC
(OsmoBSC, OsmoNITB, 3rd party)
Abis/IP
Unix Socket
IP/Ethernet based
Classic E1/T1
OsmoBTS
L2TPD
Abis/IP
osmo-bts-trx
Ericsson
Abis/E1
Nokia
Abis/E1
Ericsson
L2TP/IP
Siemens
Abis/E1
osmo-bts-sysmo
osmo-bts-lc15
osmo-bts-octphy
OsmoTRX
Other GSM PHY
Ericsson SIU
Ericsson
Abis/E1
ip.access
nanoBTS
sysmocom sysmoBTS
(many models)
Nuran
Litecell 1.5
Octasic
OCTBTS
Fairwaves
UmTRX
Ettus USRP
Family
Other SDR HW
Nokia InSite, MetroSite
Ericsson RBS 2000
(many models)
Siemens BS-11

# Clasic E1/T1 based BTS

Supported Vendors/Dialects

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

| Pro | Con |
| --- | --- |
| available inexpensively from decomissioned sites | appears a bit antiquated |
| up to 12 TRX | not many people familiar with E1/T1 anymore |
| high RF output power | no convenient testing/debugging of E1/T1 issues |
| rugged mechanical build, high MTTF | high power consumption |
| | older models no EGPRS, no AMR |

# 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

# ip.access nanoBTS

- 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

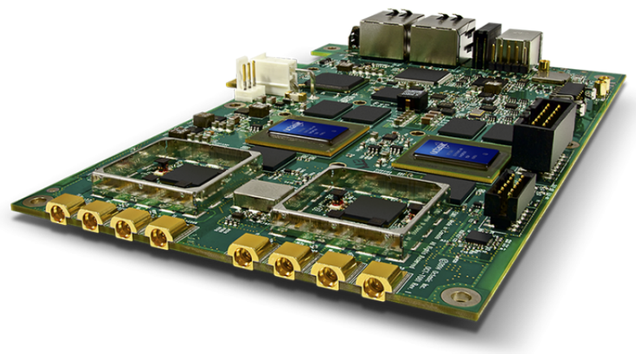
- sysmocom builds family of GSM BTS based on OsmoBTS + OsmoPCU
- revenue from this sales used to cross-subsidize OsmoBTS development
- **osmo-bts-sysmo** uses shared-memory /dev to talk to PHY
- **osmo-pcu** uses shared-memory /dev to talk to PHY


| Model | RF Pwr | TRX | Outdoor | PoE | Quad-Band |
|---|---|---|---|---|---|
| sysmoBTS 1002 | 0.2 W | 1 | No | No | Yes |
| sysmoBTS 1002 OD | 0.2 W | 1 | Yes | Yes | Yes |
| sysmoBTS 1020 | 2.0 W | 1 | Yes | Yes | No |
| sysmoBTS 1100 | 10.0 W | 1 | Yes | No | No |
| sysmoBTS 2050 | 2x 5 W | 2 | Yes | No | No |
| sysmoBTS 2100 | 2x10 W | 2 | Yes | No | No |

# 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

# EOF

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