

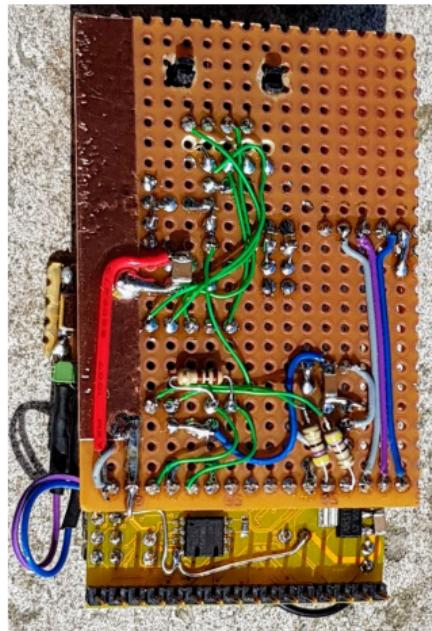
Open Hardware USB E1 interface (WIP)

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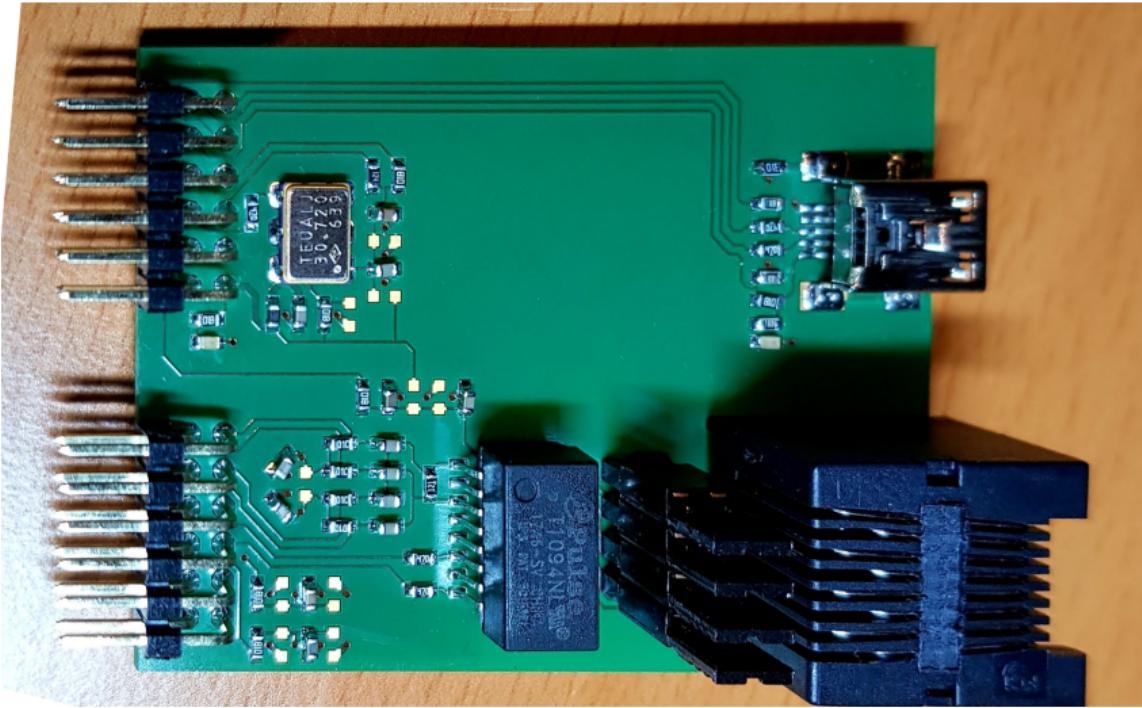
Hardware

1st prototype



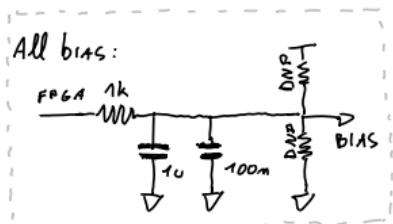
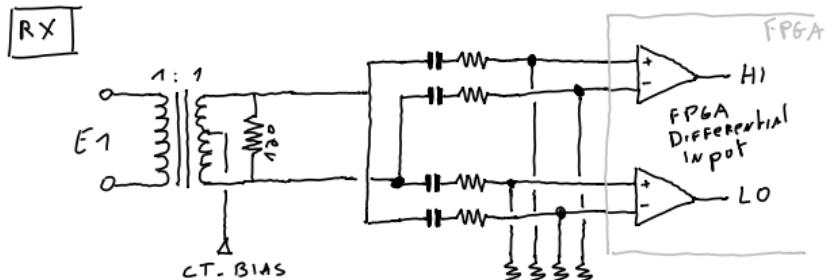
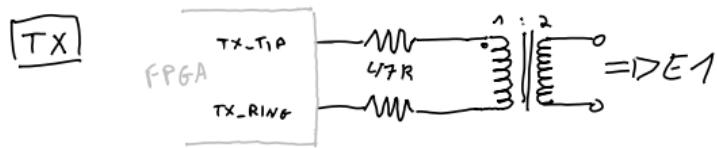
Hardware

E1 PMOD



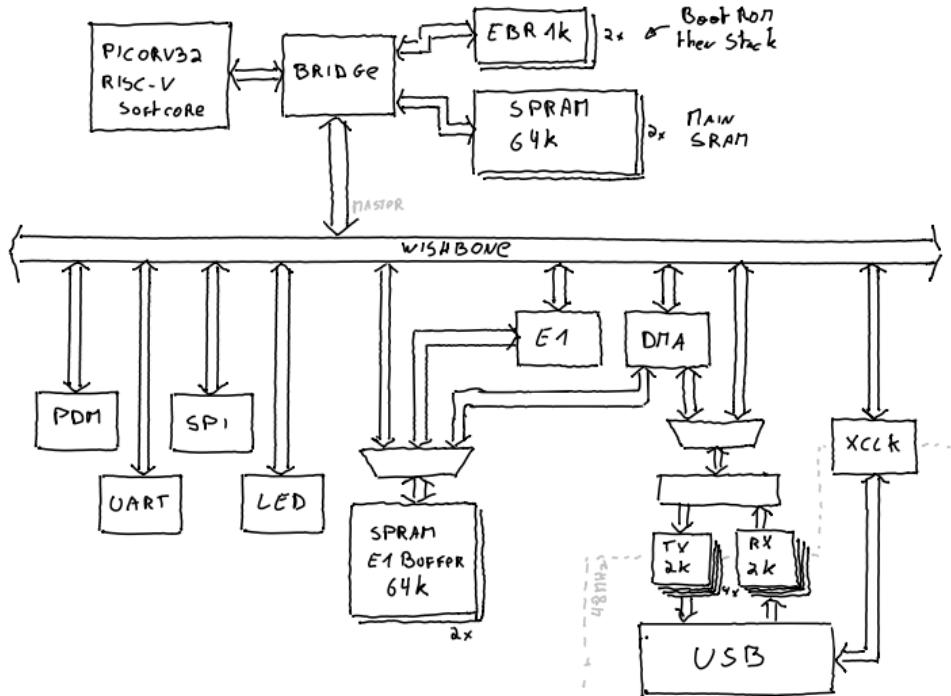
Hardware

E1 iCE40 PHY



Gateware

E1 SoC



osmo-e1d

Protocol

```
enum e1dp_msg_type {
    E1DP_CMD_INTF_QUERY      = 0x00,
    E1DP_CMD_LINE_QUERY      = 0x01,
    E1DP_CMD_TS_QUERY        = 0x02,
    E1DP_CMD_TS_OPEN          = 0x04,
    E1DP_EVT_TYPE             = 0x40,
    E1DP_RESP_TYPE            = 0x80,
    E1DP_ERR_TYPE              = 0xc0,
    E1DP_TYPE_MSK              = 0xc0,
};

enum e1dp_ts_mode {
    E1DP_TSMODE_OFF           = 0x00,
    E1DP_TSMODE_RAW            = 0x10,
    E1DP_TSMODE_HDLCFCS        = 0x11,
};

#define E1DP_MAGIC      0x00e1
#define E1DP_MAX_LEN    4096
#define E1DP_INVALID     0xff
```

```
struct e1dp_msg_hdr {
    uint16_t magic;
    uint16_t len;

    uint8_t type;
    uint8_t intf;
    uint8_t line;
    uint8_t ts;
} __attribute__((packed));

struct e1dp_intf_info {
    uint8_t id;
    uint8_t n_lines;
} __attribute__((packed));

struct e1dp_line_info {
    uint8_t id;
    uint8_t status; /* TBD */
} __attribute__((packed));

struct e1dp_ts_config {
    uint8_t mode;
} __attribute__((packed));

struct e1dp_ts_info {
    uint8_t id;
    struct e1dp_ts_config cfg;
    uint8_t status; /* TBD */
} __attribute__((packed));
```

osmo-eld

Client interface

```
struct eldp_client;

struct eldp_client *eldp_client_create(void *ctx, const char *path);
void eldp_client_destroy(struct eldp_client *srv);

int eldp_client_intf_query(struct eldp_client *clnt,
    struct eldp_intf_info **ii, int **n,
    uint8_t intf);
int eldp_client_line_query(struct eldp_client *clnt,
    struct eldp_line_info **li, int **n,
    uint8_t intf, uint8_t line);
int eldp_client_ts_query(struct eldp_client *clnt,
    struct eldp_ts_info **ti, int **n,
    uint8_t intf, uint8_t line, uint8_t ts);
int eldp_client_ts_open(struct eldp_client *clnt,
    uint8_t intf, uint8_t line, uint8_t ts,
    enum eldp_ts_mode mode);
```