

组会报告

徐益

2018 年 9 月 27 日

1 工作内容

1. 修改并提交 LDPC 相关代码;
2. 完成仿真报告;
3. 选择新的数据采集方案并采集数据。

2 修改并提交 LDPC 相关代码

2.1 SIMD 部分

```
1 Change Log for Releases
2 =====
3
4 ## version 1.2
5     * 修复了修复输入对数似然比反向的问题
6
7 ## version 1.1
8     * 修复了基于Base Graph 2的编码器异常问题
9
10 ## version 1.0
11     * 实现了基于AVX2的5G LDPC编码器
12     * 实现了基于AVX2的High-Throughput OMS及NMS译码器
13     * 实现了基于AVX2的Low-Latency OMS及NMS译码器
14     * 搭建了AWGN信道的5G LDPC编译码性能测试平台
```

2.2 MEX 部分

```
1 Change Log for Releases
2 =====
3
4 version 1.11
5     * 修复译码后对数似然比和原对数似然比不匹配的问题
6
7 version 1.10
8     * 修复输入对数似然比反向的问题
9     * 修复速率匹配时未消除补零的问题
```

3 选择新的数据采集方案并采集数据

3.1 乒乓结构

```
问题  输出  调试控制台  终端
-----
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            100540979
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      100540979
Total packets dropped:        0
=====
err pkg times = 106, err pkg num = 2806078, nvld pkg num=100540979
sent rate = 0.00Gbps, received rate = 7.27Gbps
```

图 1: 乒乓结构下的数据采集结果

```
问题  输出  调试控制台  终端
-----
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            100246461
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      100246461
Total packets dropped:        0
=====
err pkg times = 96, err pkg num = 1795855, nvld pkg num=100246461
sent rate = 0.00Gbps, received rate = 7.00Gbps
```

图 2: 乒乓结构下的数据采集结果（服务器先开）

3.2 乒乓结构

```
问题  输出  调试控制台  终端
-----
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            107008025
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      107008025
Total packets dropped:        0
=====
err pkg times = 90, err pkg num = 6940648, nvld pkg num=107008025
sent rate = 0.00Gbps, received rate = 7.02Gbps
```

图 3: N=10 的 FIFO 结构下的数据采集结果

```
问题  输出  调试控制台  终端
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            100519171
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      100519171
Total packets dropped:        0
=====
err pkg times = 3, err pkg num = 947654, nvld pkg num=100519171
sent rate = 0.00Gbps, received rate = 7.24Gbps
```

图 4: N=10 的 FIFO 结构下的数据采集结果（服务器先开）

```
问题  输出  调试控制台  终端
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            100683885
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      100683885
Total packets dropped:        0
=====
err pkg times = 20, err pkg num = 1246228, nvld pkg num=100683885
sent rate = 0.00Gbps, received rate = 7.38Gbps
```

图 5: N=20 的 FIFO 结构下的数据采集结果

```
问题  输出  调试控制台  终端
Port statistics =====
Statistics for port 0 -----
Packets sent:                0
Packets received:            209078878
Packets dropped:              0
Aggregate statistics =====
Total packets sent:          0
Total packets received:      209078878
Total packets dropped:        0
=====
err pkg times = 0, err pkg num = 0, nvld pkg num=209078878
sent rate = 0.00Gbps, received rate = 7.35Gbps
```

图 6: N=20 的 FIFO 结构下的数据采集结果（服务器先开）

3.3 当前问题

[illegible]

图 7: 全部数据

29984	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	9D	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29985	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	9E	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29986	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	AC	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29987	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	AD	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29988	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	B3	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29989	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	B4	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29990	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	C2	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29991	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	C3	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29992	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	C8	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29993	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	C9	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29994	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	D8	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29995	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	D9	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29996	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	DE	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29997	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	DF	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29998	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	EE	10	00	00	80	00	A9	00	A9	00	00	00	00	00
29999	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	EF	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30000	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C5	BC	F4	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30001	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C6	D5	B6	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30002	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C6	D5	C5	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30003	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30004	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C6	D5	CB	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30005	AC	82	F4	51	97	EB	B6	4F	FF	FF	FF	FF	00	00	00	03	C6	D5	CC	10	00	00	80	00	A9	00	A9	00	00	00	00	00
30006	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30007	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30008	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30009	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30011	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30012	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30013	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

图 8: 有效数据

```
sem_init(&sem_r, 0, 0);
sem_init(&sem_w, 0, SIZE OF BUFFER);
```

图 9: 初始化

```

if (h->data_vld == 0xFFFFFFFF)
{
    memcpy(pbuffer, adcnt, INFO_PKG_LEN);
    pbuffer += INFO_PKG_LEN;
    cnt++;
    // FILE *fp = fopen()
    if (cnt == LEN_OF_BUFFER)
    {
        cnt = 0;
        indx_write++;
        if (indx_write >= SIZE_OF_BUFFER)
            indx_write = 0;
        pbuffer = buffer[indx_write];
        sem_post(&sem_r);
        sem_wait(&sem_w);
    }
}
else
{
    nvld_pkg_num++;
}

```

图 10: 写

```

sem_wait(&sem_r);
while (!force_quit)
{
    fwrite(buffer[indx_write], sizeof(uint8_t), LEN_OF_BUFFER * INFO_PKG_LEN, fp);
    sem_post(&sem_w);
    indx_write++;
    if (indx_write >= SIZE_OF_BUFFER)
        indx_write = 0;
    sem_wait(&sem_r);
}

```

图 11: 读

4 完成仿真报告