

PG410 A01

GP106 8GB/4GB GDDR5, 256b, 256Mx32/128MX32
Tall DVI-D + DP + DP + HDMI/DP + DP

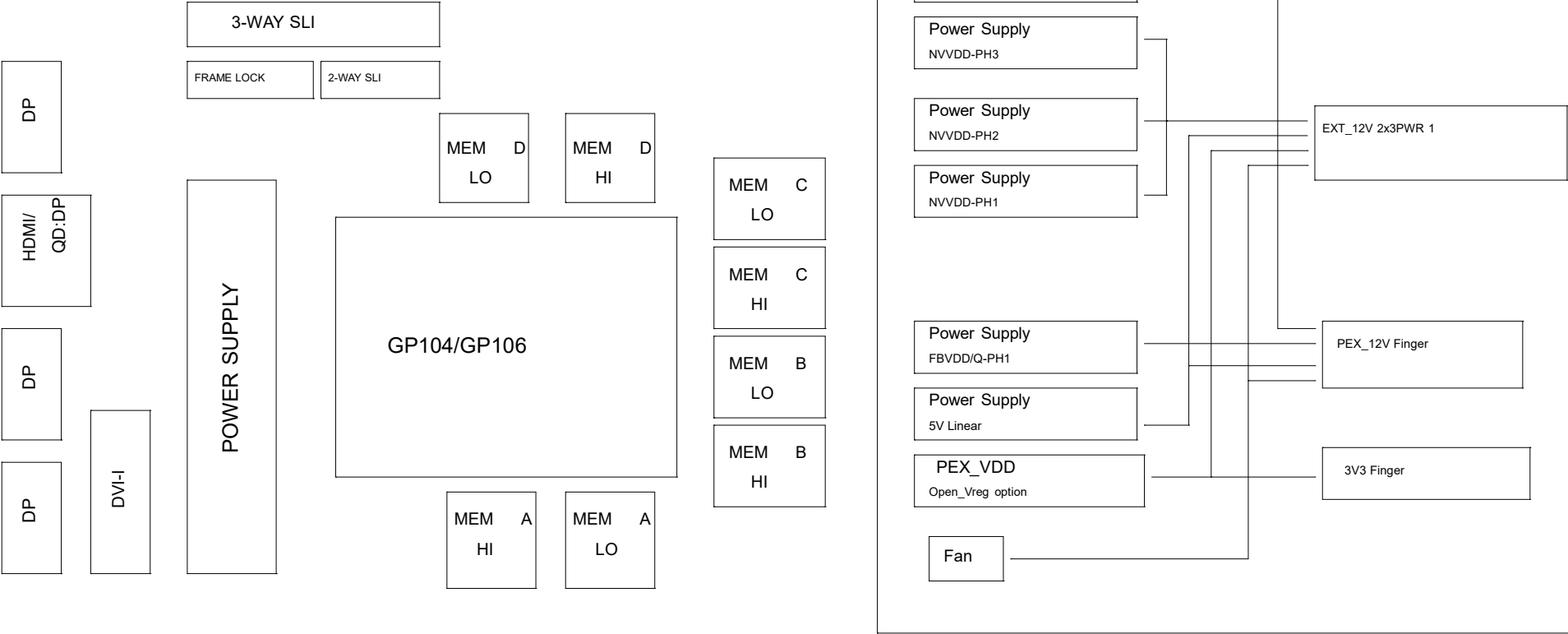
TABLE OF CONTENTS

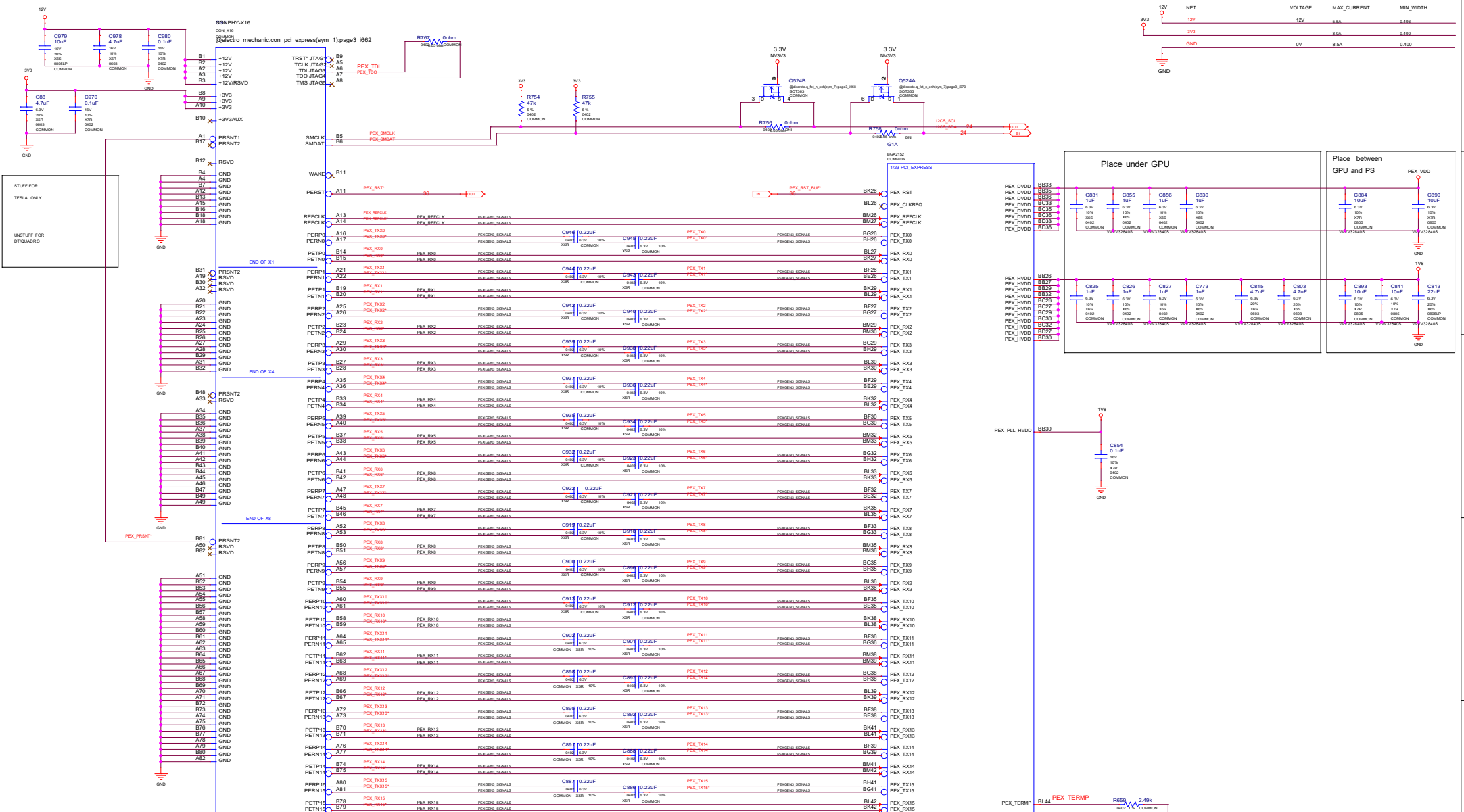
Page	Description
1	Table of Contents
2	Block Diagram
3	PCI Express
4	GPU FB_AB
5	MEMORY: FBA[31:0]
6	MEMORY: FBA[63:32]
7	MEMORY: FBB[31:0]
8	MEMORY: FBB[63:32]
9	MEM FB_AB PWR
10	GPU FB_CD
11	MEMORY: FBC[31:0]
12	MEMORY: FBC[63:32]
13	MEMORY: FBD[31:0]
14	MEMORY: FBD[63:32]
15	MEM FB_CD PWR
16	GPU PWR & GND
17	GPU Decoupling
18	IFPAB DVI-D-DL
19	IFPE DP
20	IFPF DP
21	IFPC HDMI/DP
22	IFPD DP
23	MIOA/B Interface and Frame Lock
24	MISC1: Fan, Thermal, JTAG, GPIO,STEREO
25	MISC2: ROM, XTAL,STRAPS

Page	Description
26	PS: 1V8_PLL, 1V8_AON
27	PS: 5V, PEX_VDD
28	PS: NV3V3, NV12V
29	PS: FBVDD
30	PS: NVVDD Controller
31	PS: NVVDD Phase 1,2 & 3
32	PS: NVVDD Rail Balance Login & Dynamic Phase
33	PS: Input, Filtering, and Monitoring
34	PS: 12V Power Steering,PSI Control & LED
35	PS: Shut Down and Sequencing
36	PS: GC6 MISC
37	MECH

6.1 1. NVVDD_VR 2. L 3. C 4. HDMI D P CLAY

	MICRO-STAR INT'L CO.,LTD		
	MS-V328		
	Size	Document Description	Rev
	Custom	01	7.0
Date: Friday, November 11, 2016		Sheet 1 of 38	





GDOR5 CMD Mapping

CMD0 8.31 32.83

CMD0 CAS*
CMD1 CKE*
CMD2 RS*
CMD3 RAS*
CMD4 A1_A8
CMD5 A0_A10
CMD6 A12_RFU
CMD7 AB*
CMD8 AE_A11
CMD9 AF_A8
CMD10 WE*
CMD11 AE_BA1
CMD12 AE_BA2
CMD13 AE_BA3
CMD14 AE_BA4
CMD15 CS*
CMD16 CAS*
CMD17 CKE*
CMD18 RS*
CMD19 A1_A8
CMD20 A0_A10
CMD21 A12_RFU
CMD22 AB*
CMD23 AE_A11
CMD24 AF_A8
CMD25 WE*
CMD26 AE_BA1
CMD27 AE_BA2
CMD28 AE_BA3
CMD29 AE_BA4
CMD30 CS*

CMD31

CMD32

CMD33

CMD34

CMD35

CMD36

CMD37

CMD38

CMD39

CMD40

CMD41

CMD42

CMD43

CMD44

CMD45

CMD46

CMD47

CMD48

CMD49

CMD50

CMD51

CMD52

CMD53

CMD54

CMD55

CMD56

CMD57

CMD58

CMD59

CMD60

CMD61

CMD62

CMD63

CMD64

CMD65

CMD66

CMD67

CMD68

CMD69

CMD70

CMD71

CMD72

CMD73

CMD74

CMD75

CMD76

CMD77

CMD78

CMD79

CMD80

CMD81

CMD82

CMD83

CMD84

CMD85

CMD86

CMD87

CMD88

CMD89

CMD90

CMD91

CMD92

CMD93

CMD94

CMD95

CMD96

CMD97

CMD98

CMD99

CMD100

CMD101

CMD102

CMD103

CMD104

CMD105

CMD106

CMD107

CMD108

CMD109

CMD110

CMD111

CMD112

CMD113

CMD114

CMD115

CMD116

CMD117

CMD118

CMD119

CMD120

CMD121

CMD122

CMD123

CMD124

CMD125

CMD126

CMD127

CMD128

CMD129

CMD130

CMD131

CMD132

CMD133

CMD134

CMD135

CMD136

CMD137

CMD138

CMD139

CMD140

CMD141

CMD142

CMD143

CMD144

CMD145

CMD146

CMD147

CMD148

CMD149

CMD150

CMD151

CMD152

CMD153

CMD154

CMD155

CMD156

CMD157

CMD158

CMD159

CMD160

CMD161

CMD162

CMD163

CMD164

CMD165

CMD166

CMD167

CMD168

CMD169

CMD170

CMD171

CMD172

CMD173

CMD174

CMD175

CMD176

CMD177

CMD178

CMD179

CMD180

CMD181

CMD182

CMD183

CMD184

CMD185

CMD186

CMD187

CMD188

CMD189

CMD190

CMD191

CMD192

CMD193

CMD194

CMD195

CMD196

CMD197

CMD198

CMD199

CMD200

CMD201

CMD202

CMD203

CMD204

CMD205

CMD206

CMD207

CMD208

CMD209

CMD210

CMD211

CMD212

CMD213

CMD214

CMD215

CMD216

CMD217

CMD218

CMD219

CMD220

CMD221

CMD222

CMD223

CMD224

CMD225

CMD226

CMD227

CMD228

CMD229

CMD230

CMD231

CMD232

CMD233

CMD234

CMD235

CMD236

CMD237

CMD238

CMD239

CMD240

CMD241

CMD242

CMD243

CMD244

CMD245

CMD246

CMD247

CMD248

CMD249

CMD250

CMD251

CMD252

CMD253

CMD254

CMD255

CMD256

CMD257

CMD258

CMD259

CMD260

CMD261

CMD262

CMD263

CMD264

CMD265

CMD266

CMD267

CMD268

CMD269

CMD270

CMD271

CMD272

CMD273

CMD274

CMD275

CMD276

CMD277

CMD278

CMD279

CMD280

CMD281

CMD282

CMD283

CMD284

CMD285

CMD286

CMD287

CMD288

CMD289

CMD290

CMD291

CMD292

CMD293

CMD294

CMD295

CMD296

CMD297

CMD298

CMD299

CMD300

CMD301

CMD302

CMD303

CMD304

CMD305

CMD306

CMD307

CMD308

CMD309

CMD310

CMD311

CMD312

CMD313

CMD314

CMD315

CMD316

CMD317

CMD318

CMD319

CMD320

CMD321

CMD322

CMD323

CMD324

CMD325

CMD326

CMD327

CMD328

CMD329

CMD330

CMD331

CMD332

CMD333

CMD334

CMD335

CMD336

CMD337

CMD338

CMD339

CMD340

CMD341

CMD342

CMD343

CMD344

CMD345

CMD346

CMD347

CMD348

CMD349

CMD350

CMD351

CMD352

CMD353

CMD354

CMD355

CMD356

CMD357

CMD358

CMD359

CMD360

CMD361

CMD362

CMD363

CMD364

CMD365

CMD366

CMD367

CMD368

CMD369

CMD370

CMD371

CMD372

CMD373

CMD374

CMD375

CMD376

CMD377

CMD378

CMD379

CMD380

CMD381

CMD382

CMD383

CMD384

CMD385

CMD386

CMD387

CMD388

CMD389

CMD390

CMD391

CMD392

CMD393

CMD394

CMD395

CMD396

CMD397

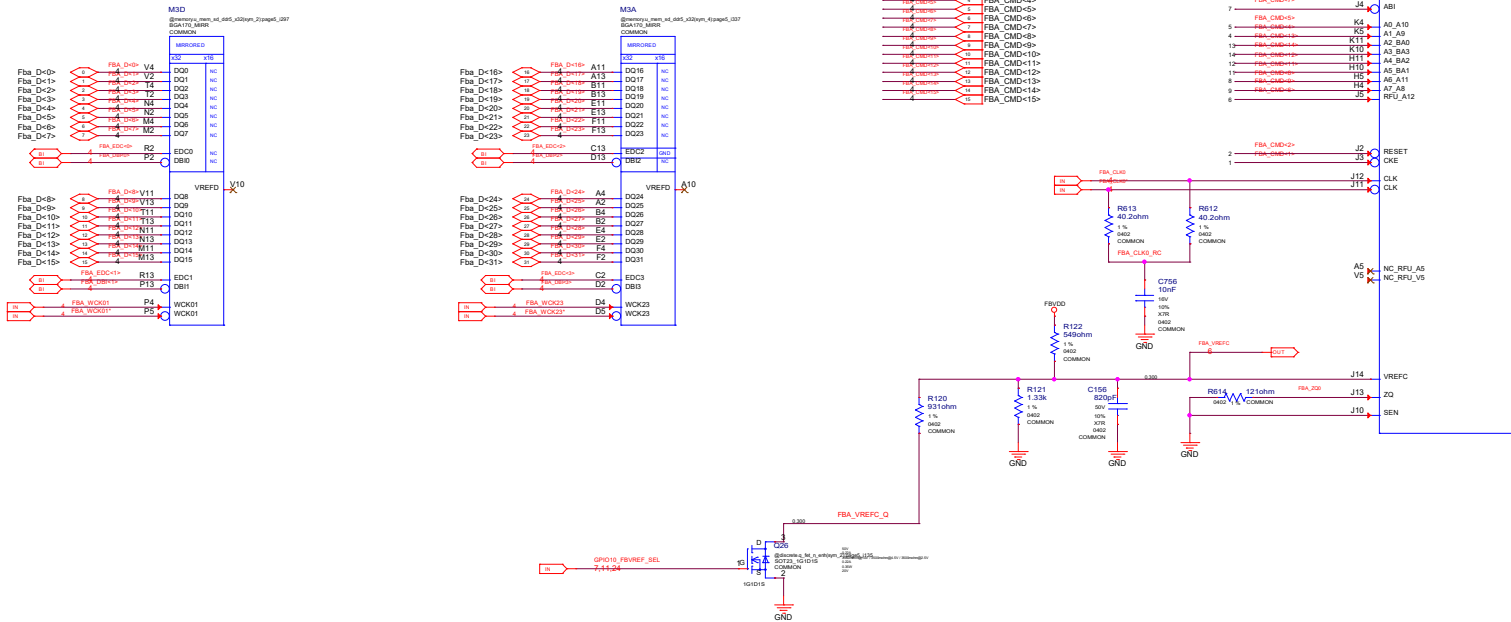
CMD398

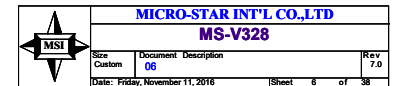
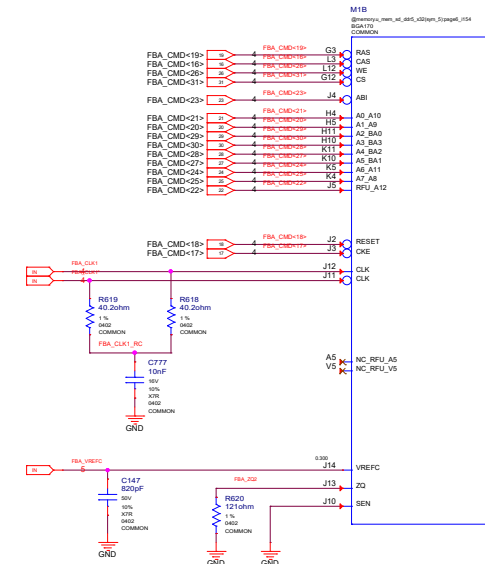
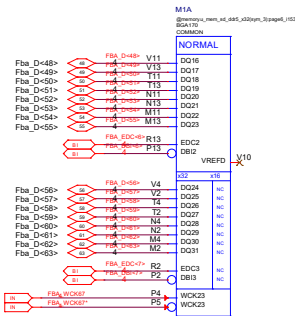
CMD399

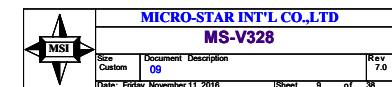
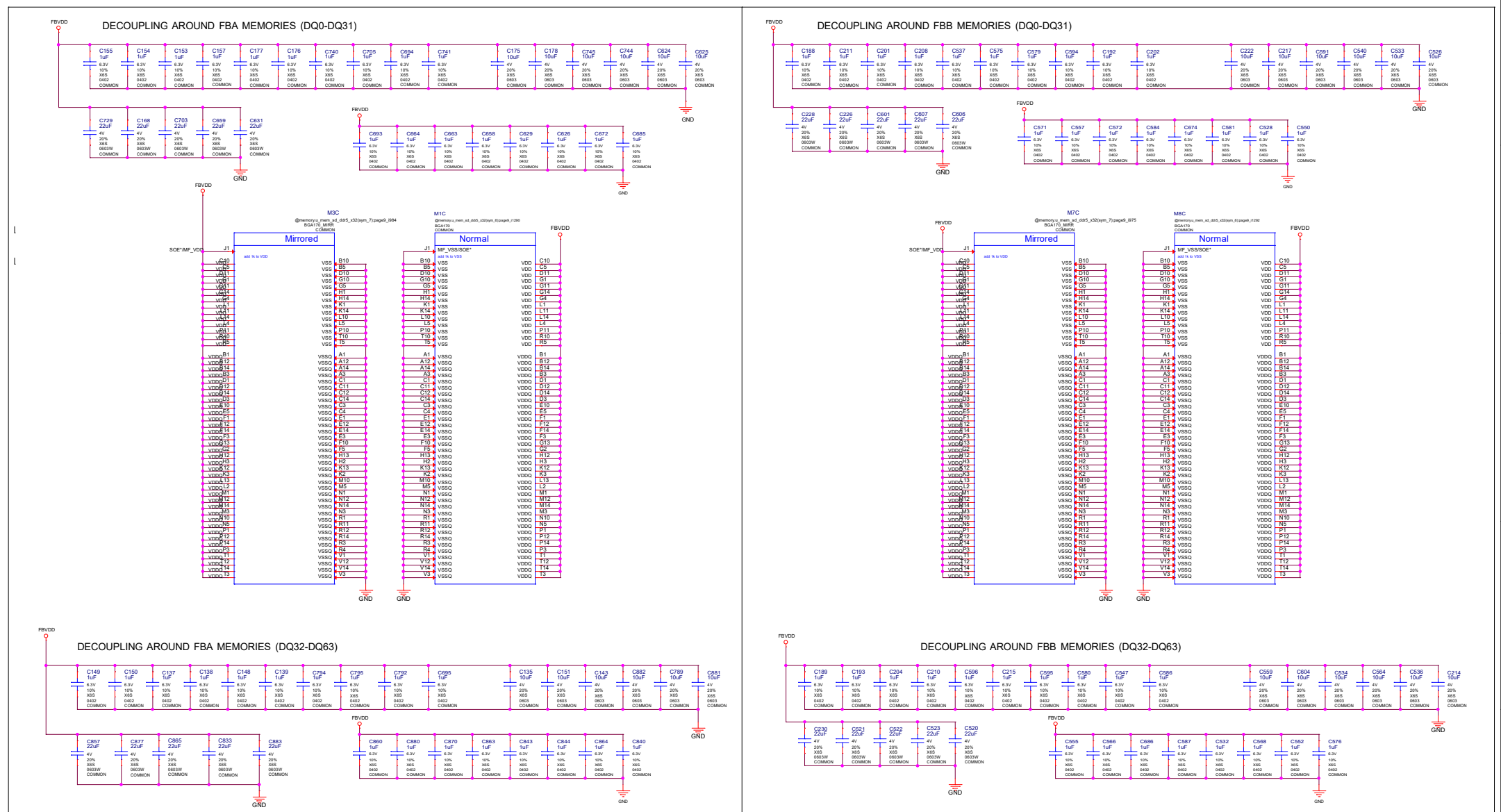
CMD400

CMD401

CMD

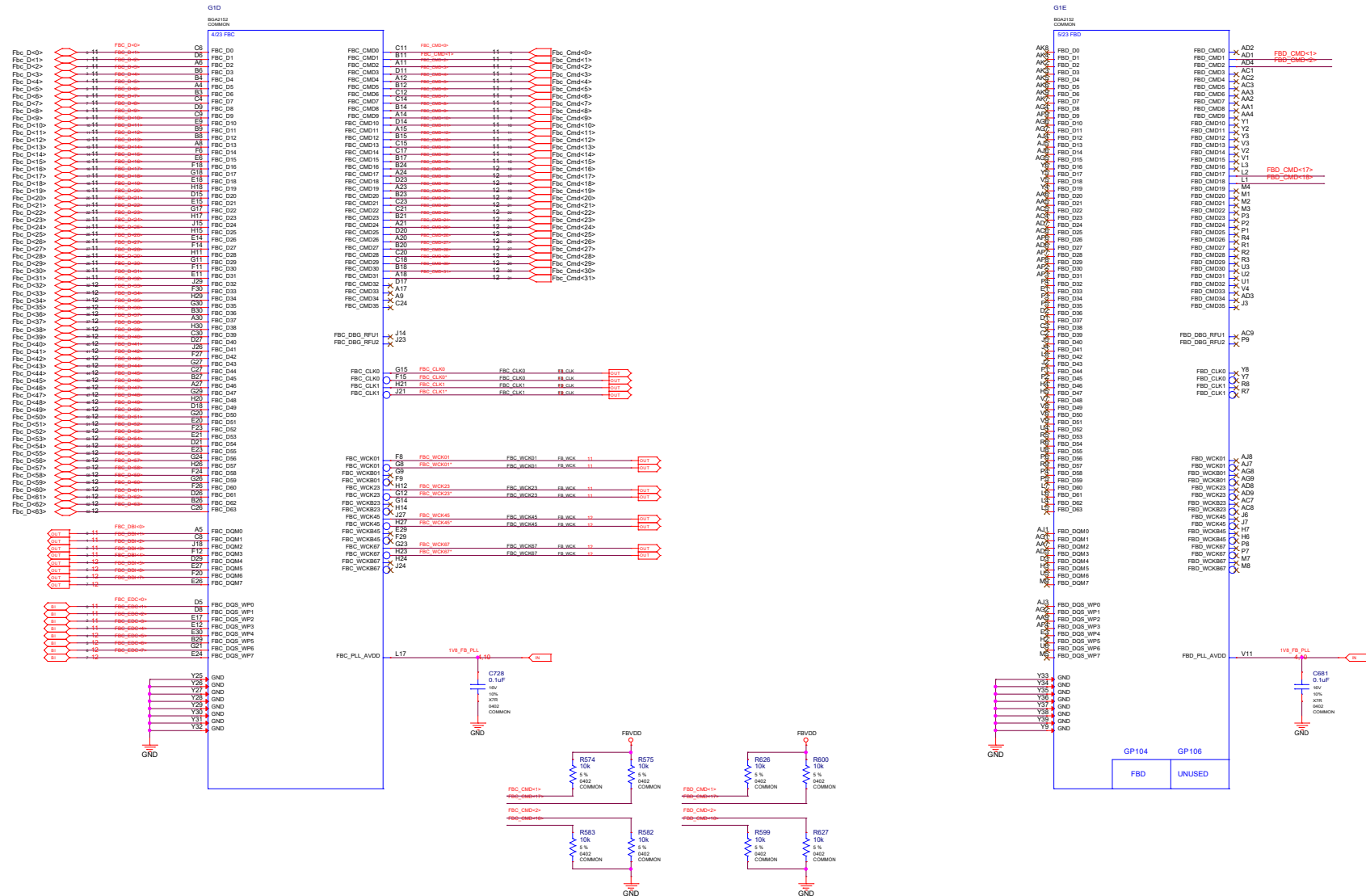


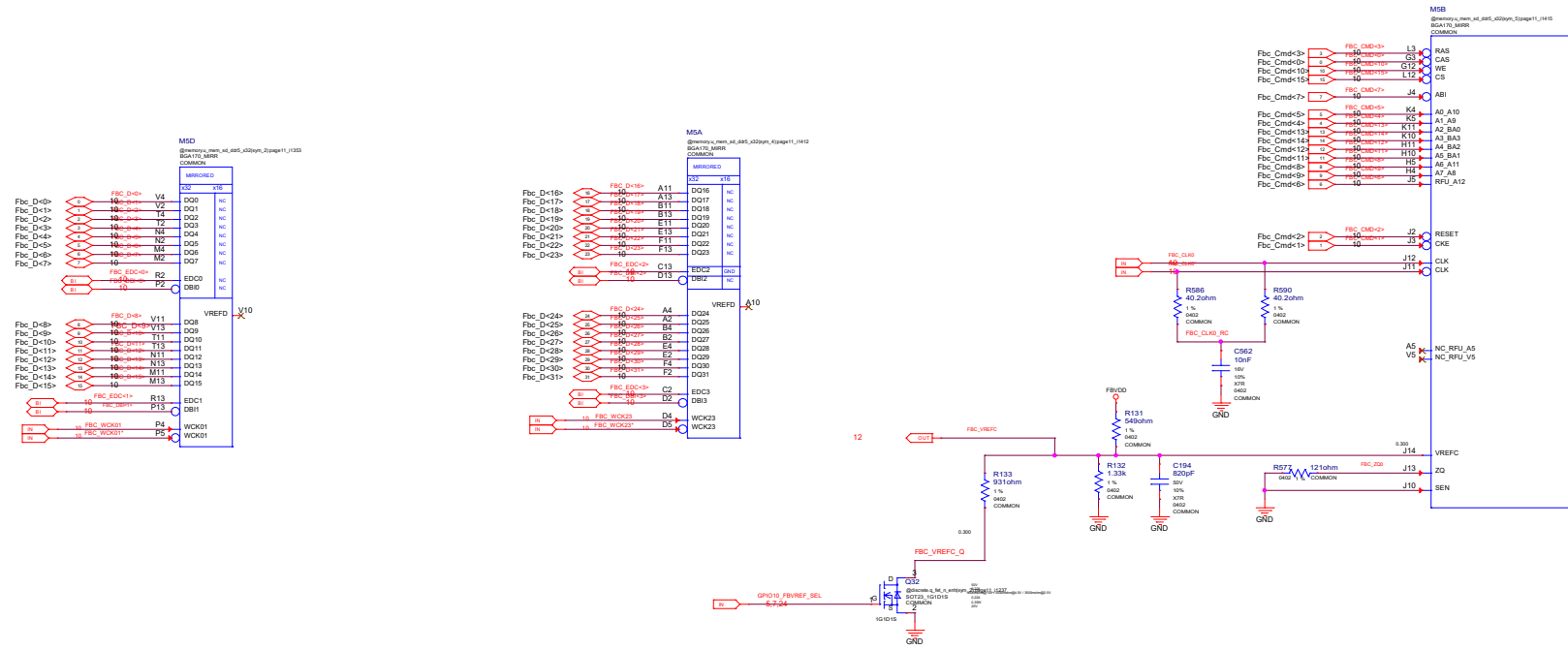


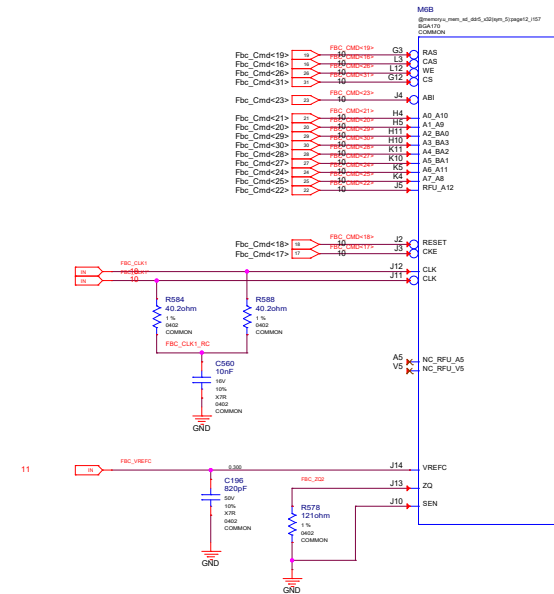
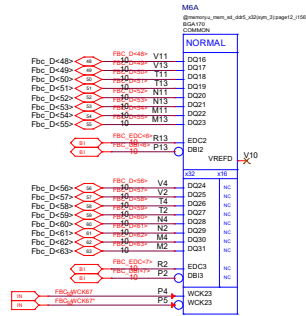
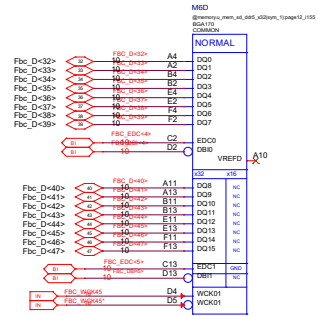



GDDR5 CMD Mapping

CMD	G_31	32-63
CM00	CAS*	
CM01	CKE*	
CM02	RS*	
CM03	RA*	
CM04	A1_A0	
CM05	A2_A10	
CM06	A12_RFU	
CM07	AB*	
CM08	AB_A11	
CM09	A7_A6	
CM10	WE*	
CM11	AS_BA1	
CM12	AS_BA2	
CM13	A2_BA0	
CM14	A3_BA3	
CM15	CS*	
CM16	CAS*	
CM17	CKE*	
CM18	RS*	
CM19	RA*	
CM20	A1_A0	
CM21	A6_A10	
CM22	A12_RFU	
CM23	AB*	
CM24	AB_A11	
CM25	A7_A6	
CM26	WE*	
CM27	AS_BA1	
CM28	AS_BA2	
CM29	A2_BA0	
CM30	A3_BA3	
CM31	CS*	






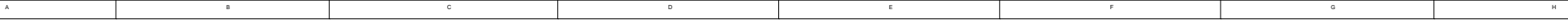
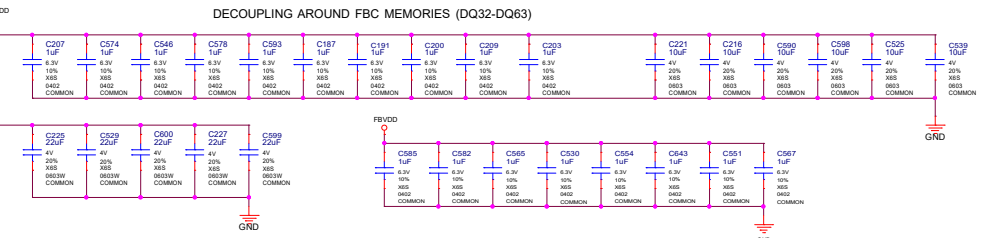


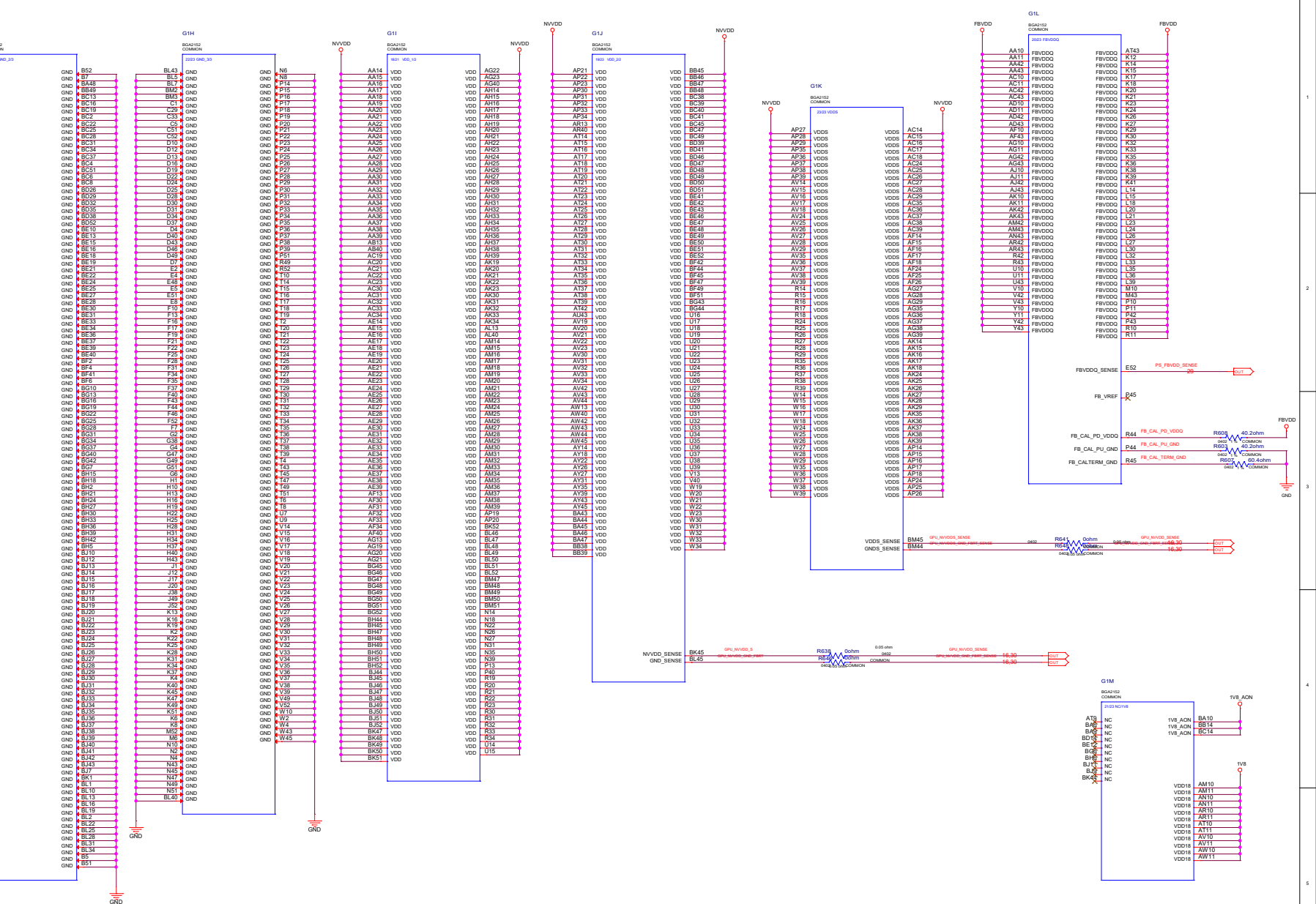


MICRO-STAR INT'L CO.,LTD			
MS-V328			
Size	Document	Description	Rev
Custom	13		7.0
Date: Friday, November 11, 2016		Sheet	13 of 38

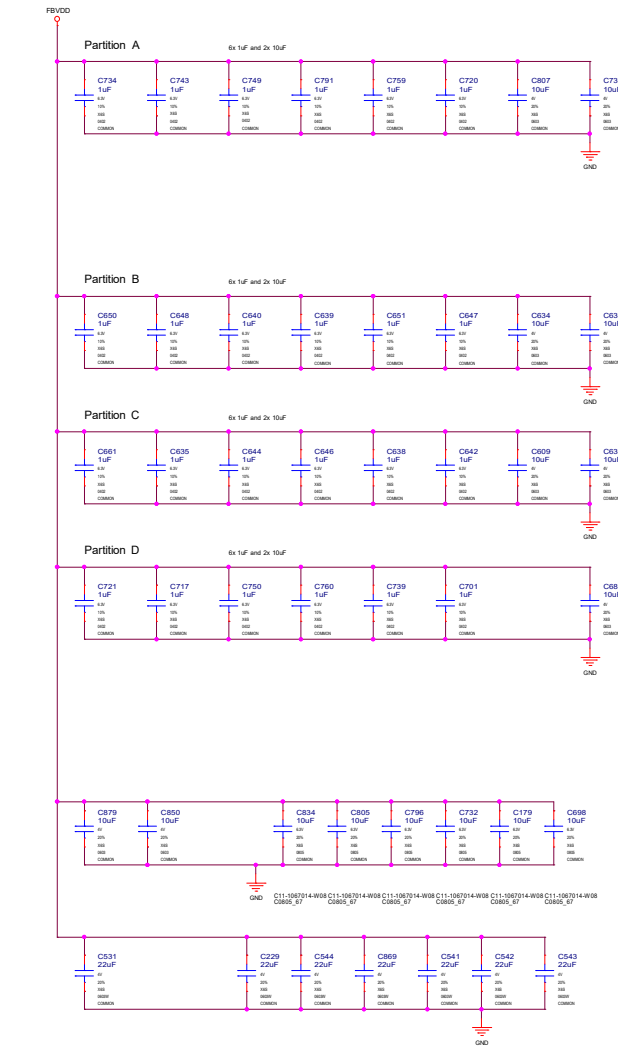


MICRO-STAR INT'L CO.,LTD			
MS-V328			
Size	Document	Description	Rev
Custom	14		7.0
Date: Friday, November 11, 2016		Sheet	14 of 38

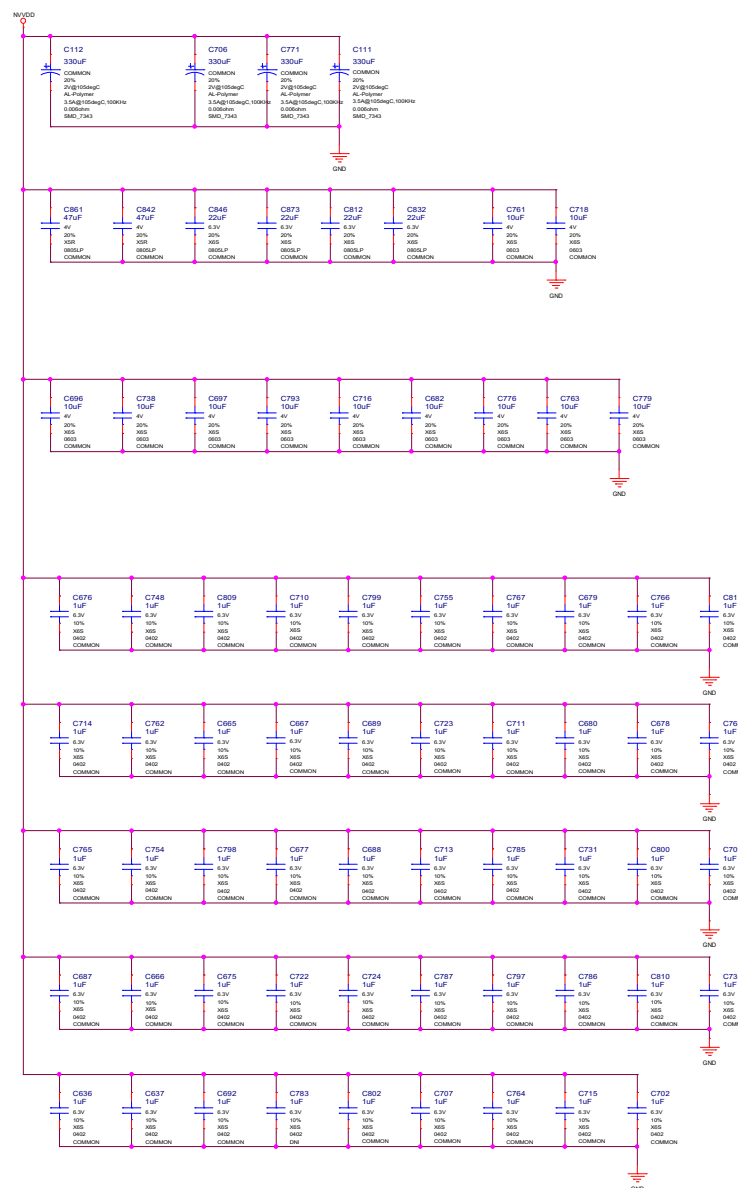




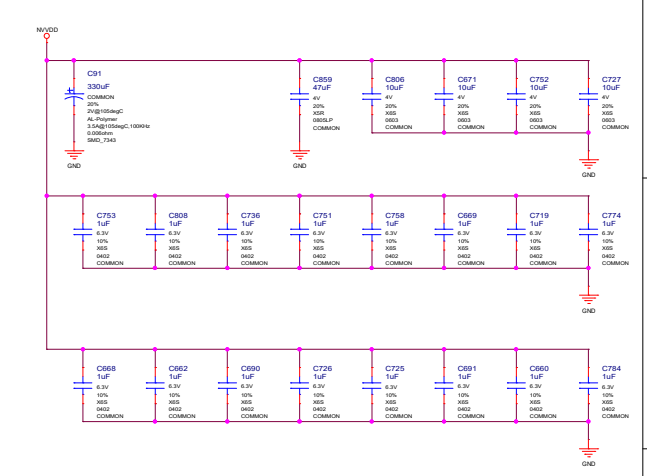
FBVDD



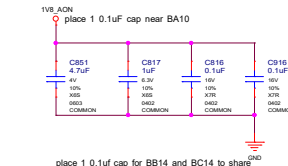
NVVDD



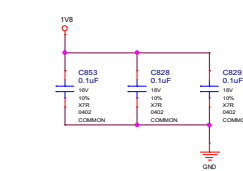
NVVDD

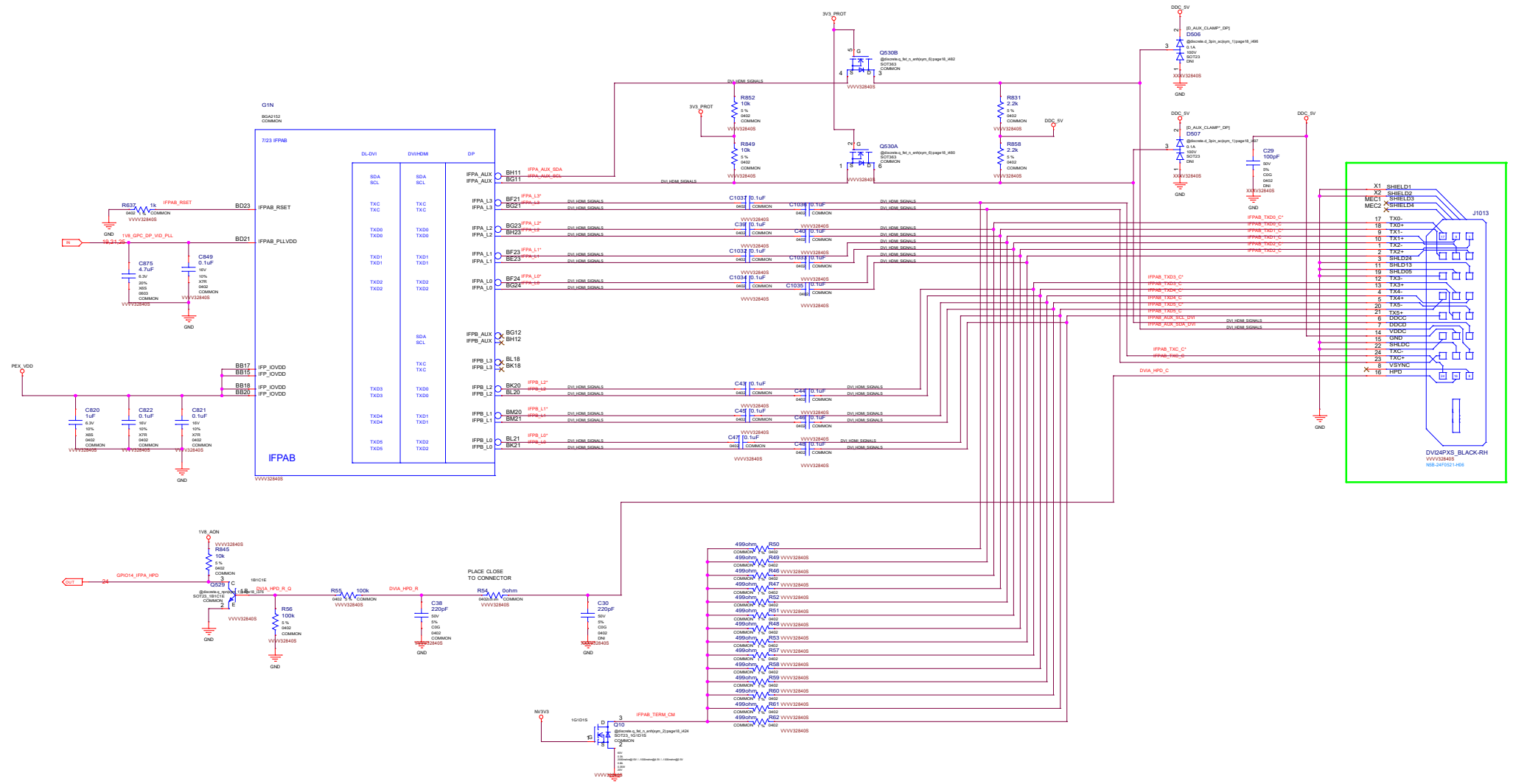


1V8_AON



1V8_MAIN

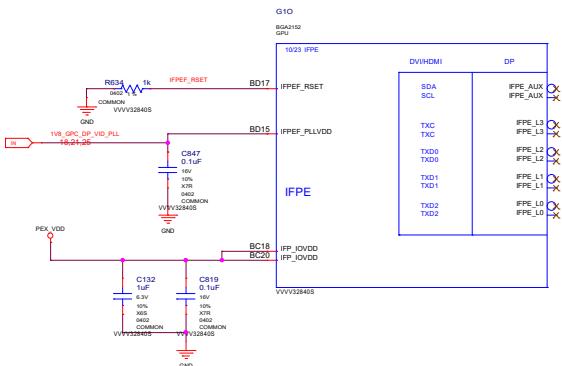




更換為單層無架高

17ci203

MICRO-STAR INT'L CO.,LTD			
MS-V328			
Size	Document	Description	Rev
Custom	18		7.0
Date: Friday, November 11, 2016		Sheet 18 of 38	



1

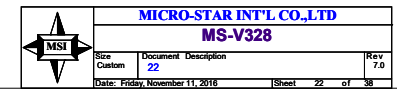
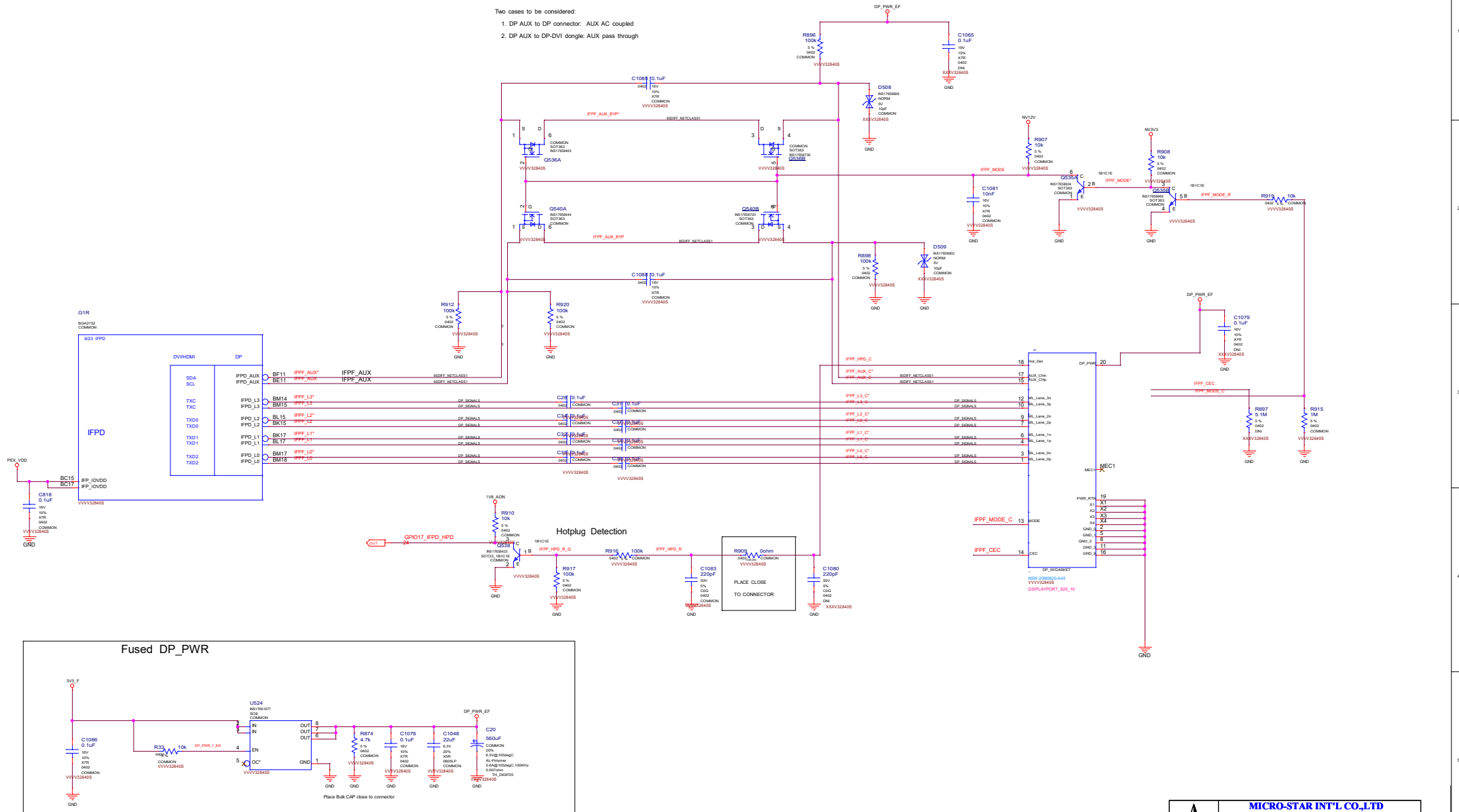


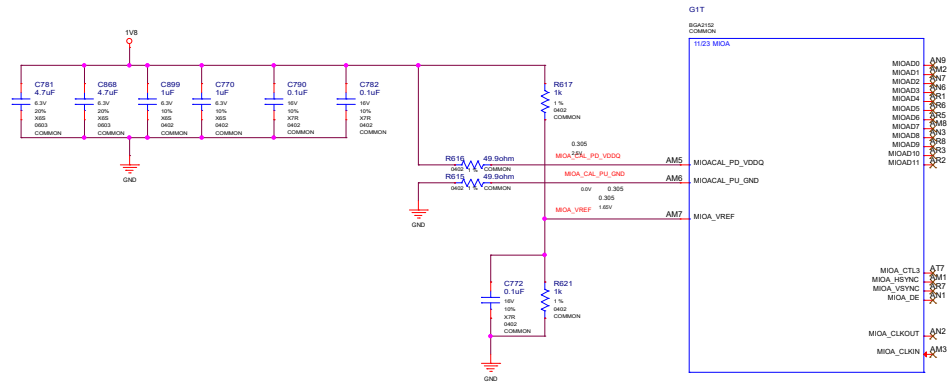
3



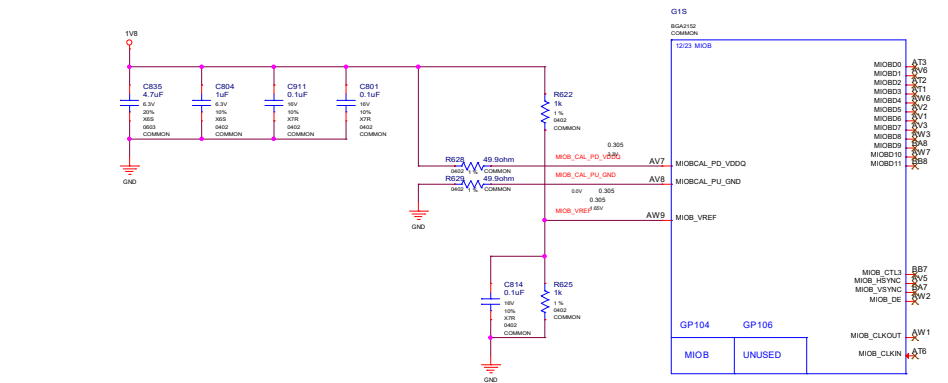
Two cases to be considered:

1. DP AUX to DP connector: AUX AC coupled
2. DP AUX to DP-DVI dongle: AUX pass through





Pad Overlap R1042 & R1043



STRAP2	STRAP1	STRAP0	RAMCFG[4:0]
L	L	L	00000
L	L	H	00001
L	H	L	00010
L	H	H	00011
H	H	L	00110
H	H	H	00111
L	L	M	01000

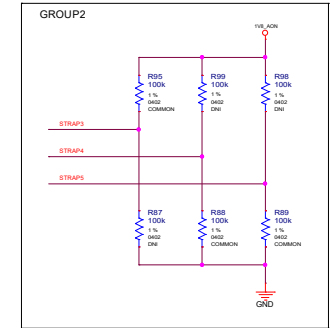
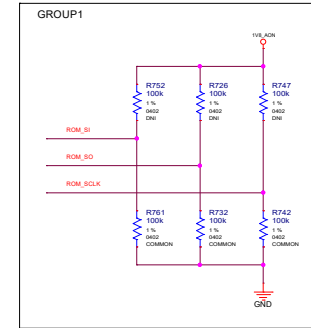
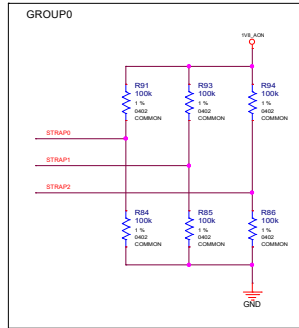
ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]	1:ENABLE 0:DISABLE
L	L	L	1111	DEFAULT SOR0/1/2/3 ENABLE
L	L	H	1110	
L	H	L	1101	
L	H	H	1100	
H	L	L	1011	
H	L	H	1010	
H	H	L	1001	
H	H	H	1000	
L	L	M	0111	
L	M	L	0110	
L	M	H	0101	
L	H	M	0100	
H	L	M	0011	
H	M	L	0010	
H	M	H	0001	
H	H	M	0000	

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1
L	L	L	0	0	0	0

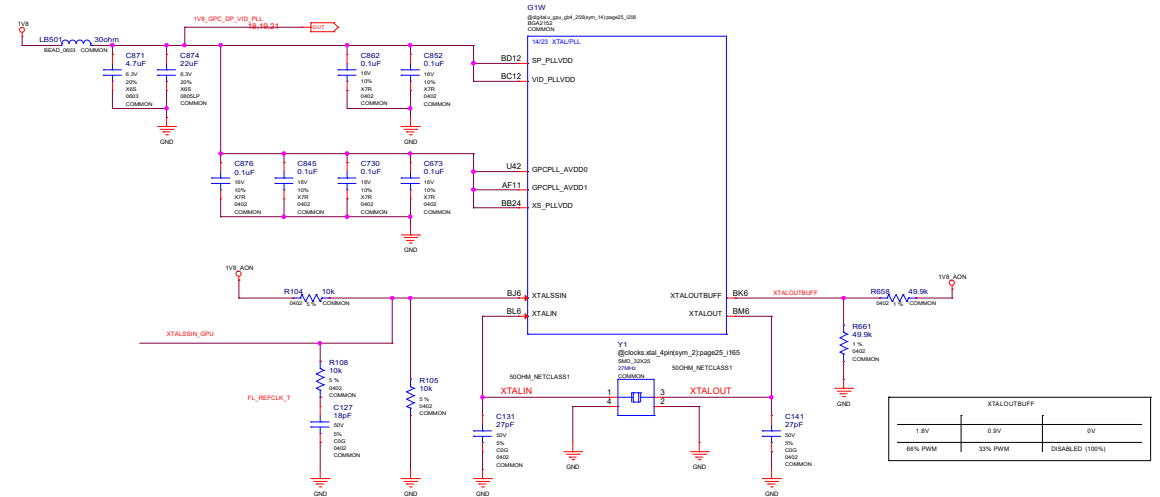
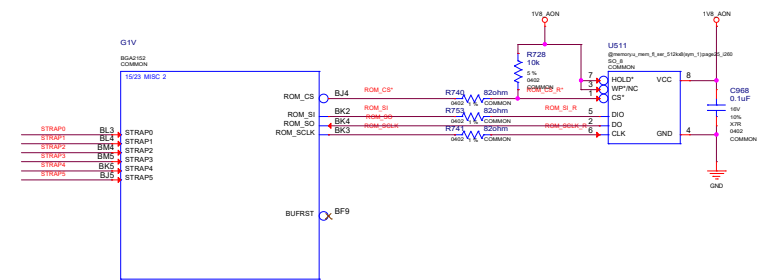
H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER
1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE



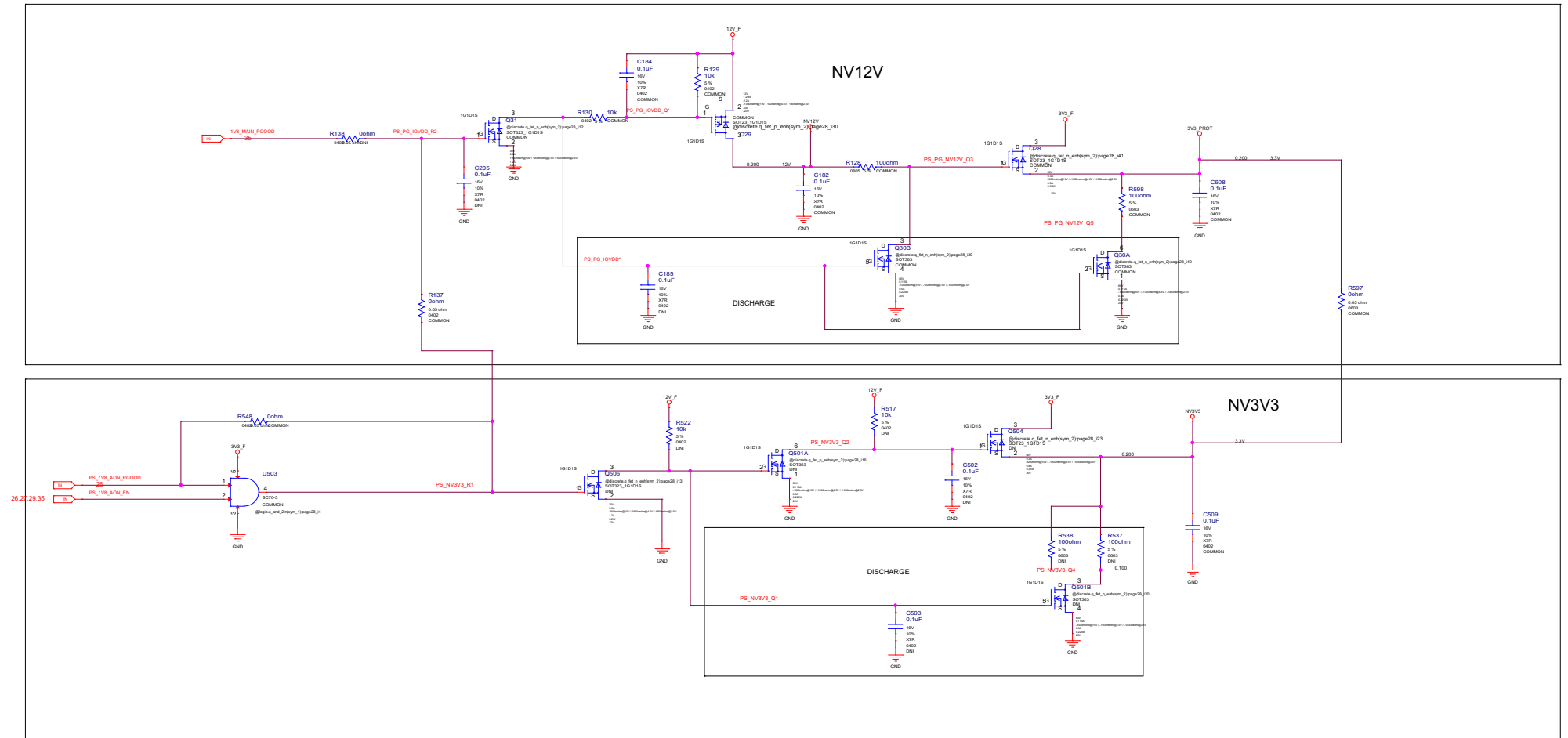
CFG[3:0]	Config	Width	Vendor
0000	256Mx32 256-bit	Samsung	
0001	256Mx32 256-bit	Micron	
0010	256Mx32 256-bit	Hynix	
0011	Reserved		
0100	Reserved		
0101	Reserved		
0110	Reserved		
0111	Reserved		



XTALOUTBUFF		
1.8V	0.9V	0V
88% PWM	33% PWM	DISABLED (100%)

MICRO-STAR INT'L CO.,LTD
MS-V328

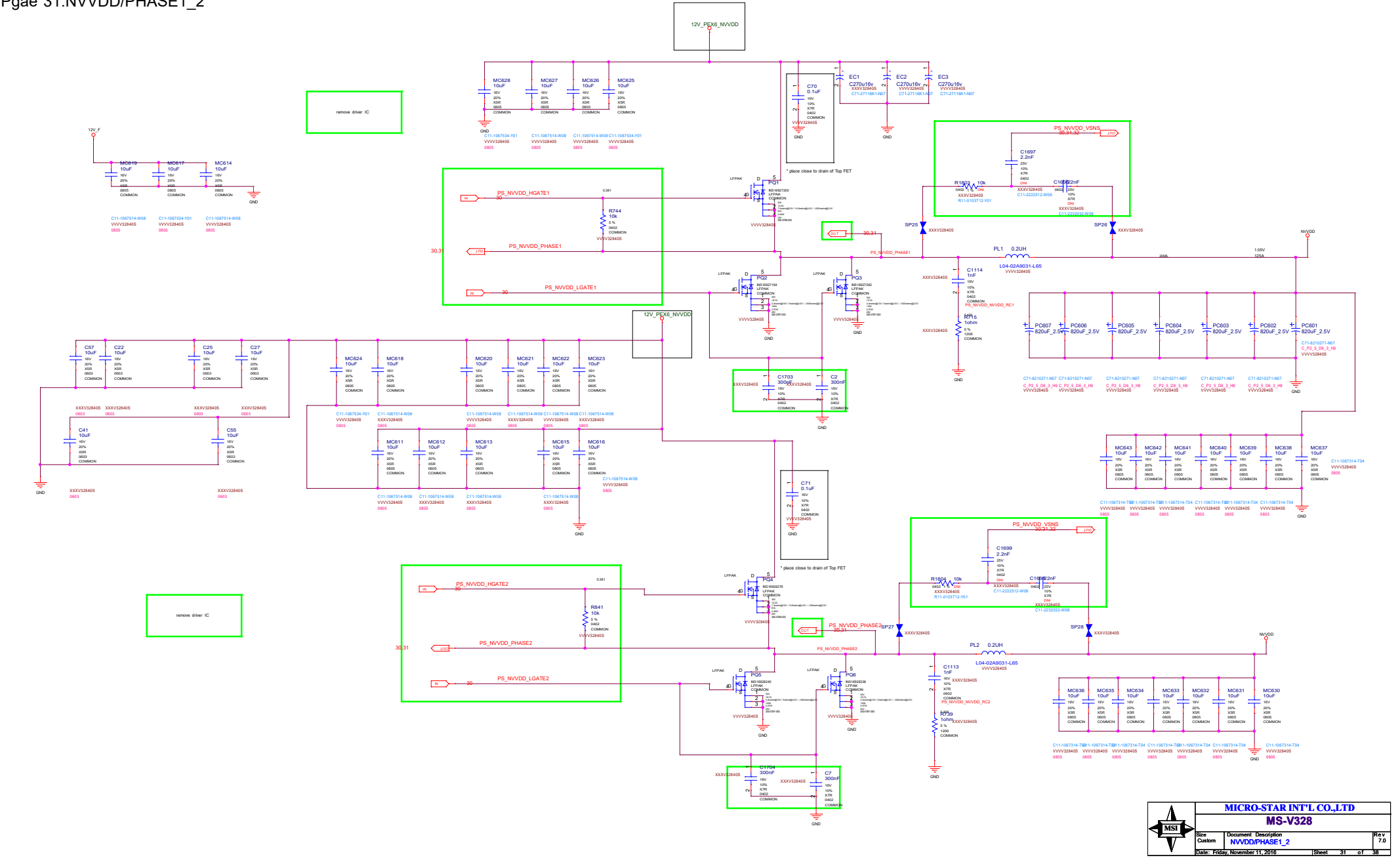
Size	Custom	Document Description	Rev
		25	7.0
Date:	Friday, November 11, 2016	ISheet	25 of 38

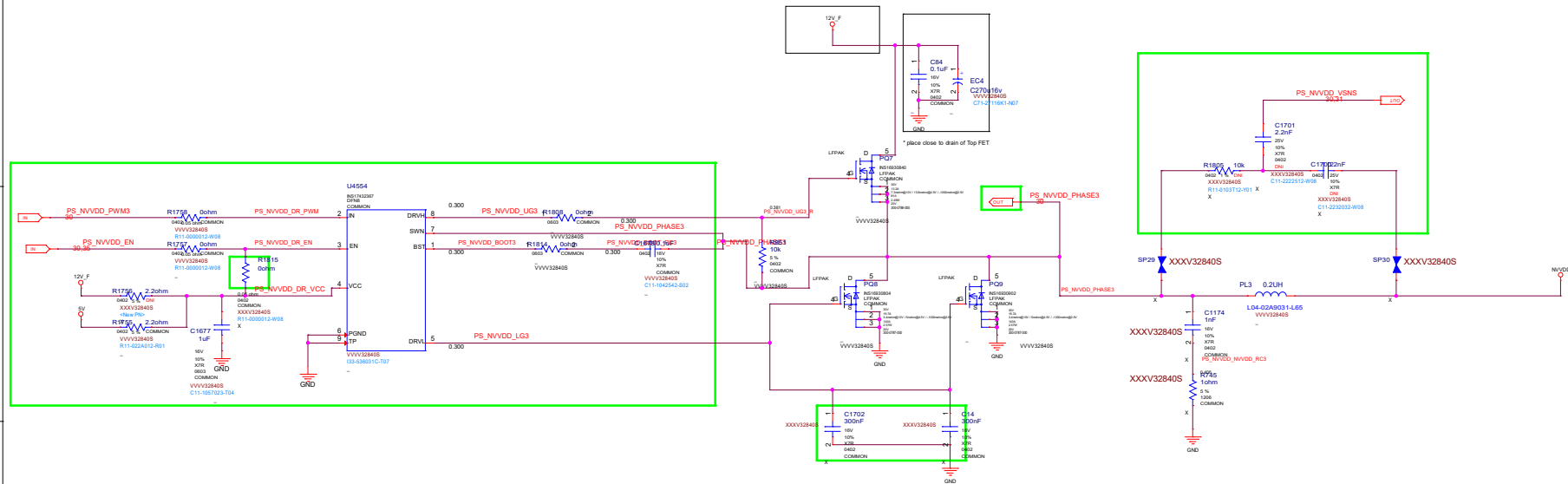


MICRO-STAR INT'L CO.,LTD

MS-V328

Size Custom	Document Description 28	Rev 7.0
Date: Friday, November 11, 2016		Sheet 28 of 38



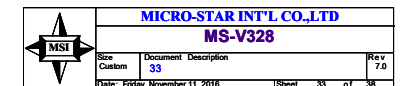
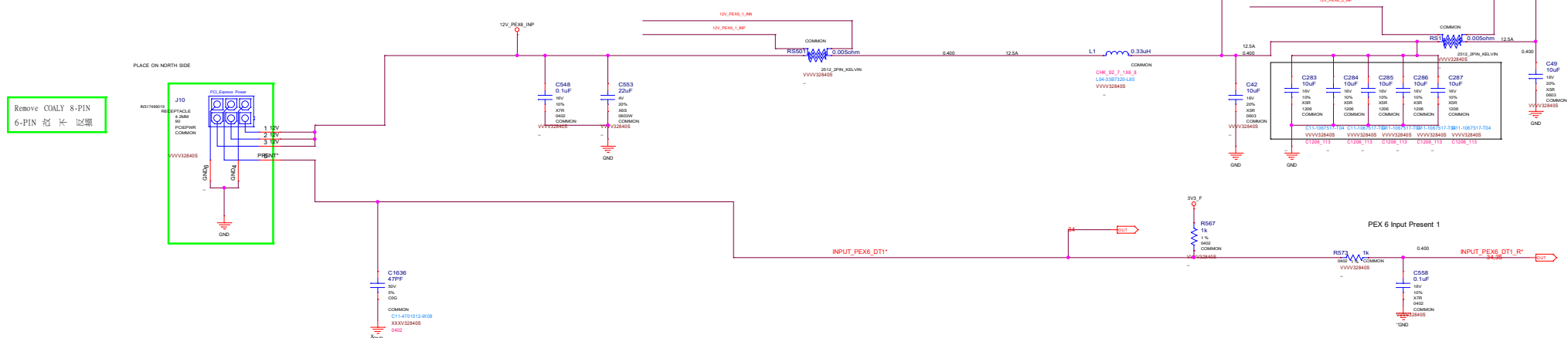
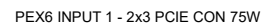
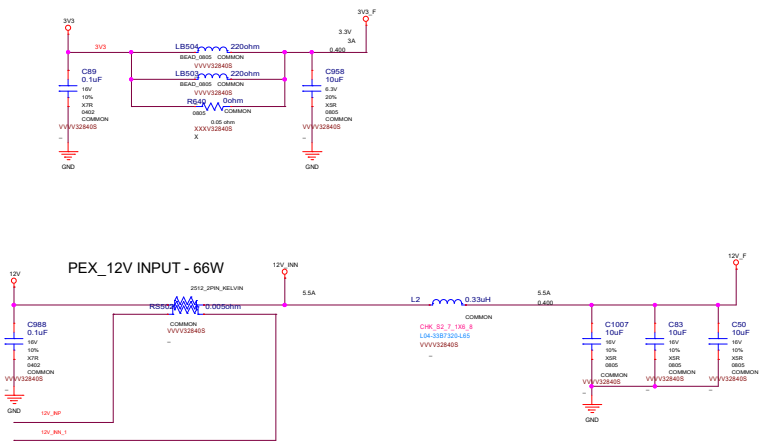
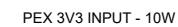
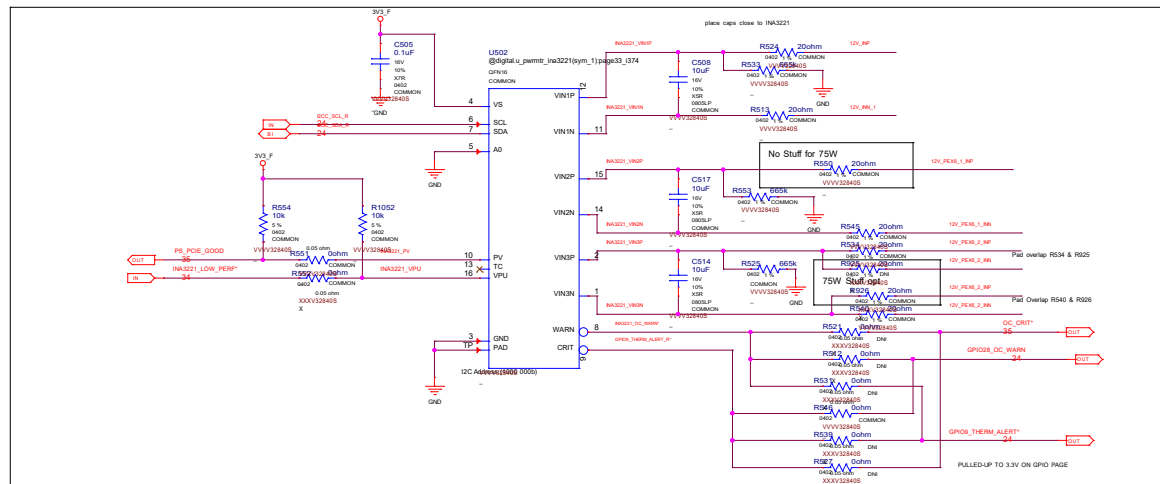


CORE 90A /3 =30A
CORE 1 - EXT 6
CORE 2 - EXT 6
CORE 3 - BUS
MEM 30A- BUS
-BUS WARRING-

```

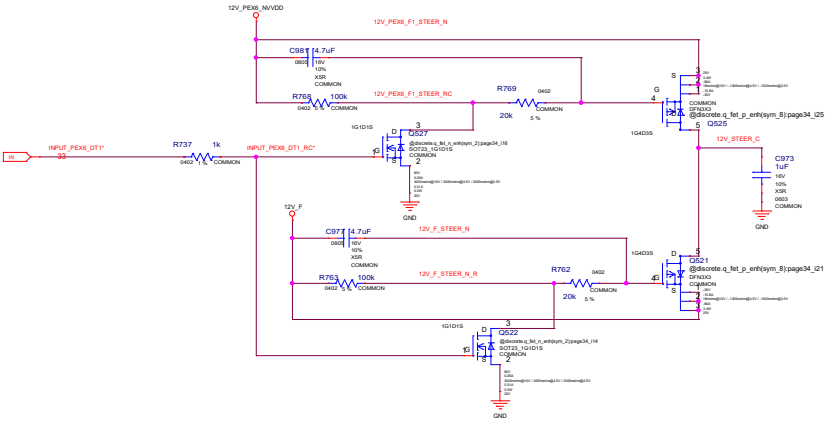
CORE 90A /4 =22.5A
CORE 1 - EXT 6
CORE 2 - EXT 6
CORE 3 - BUS
CORE 4 - EXT 6
MEM 30A- BUS

```

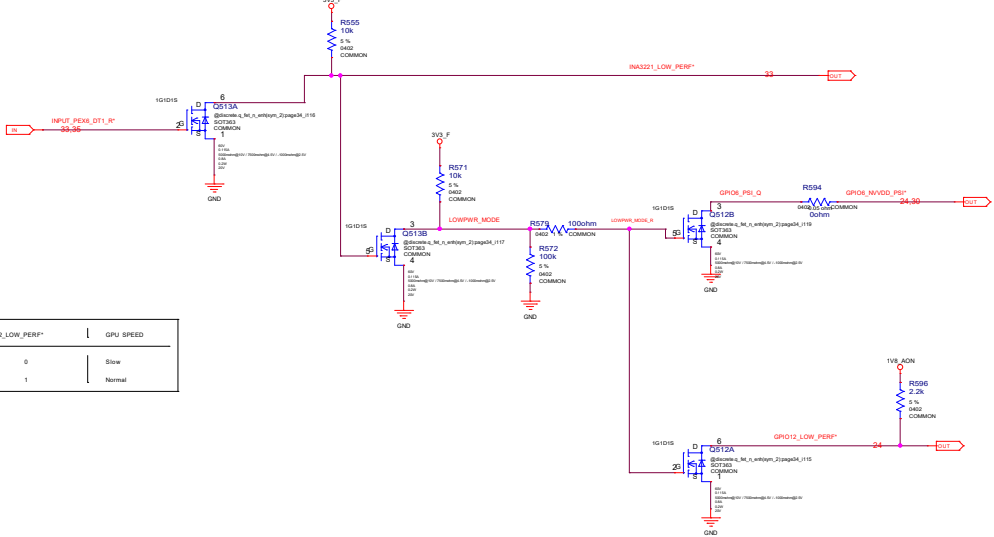



12V CURRENT STEERING (UNDER POWER BOOT):

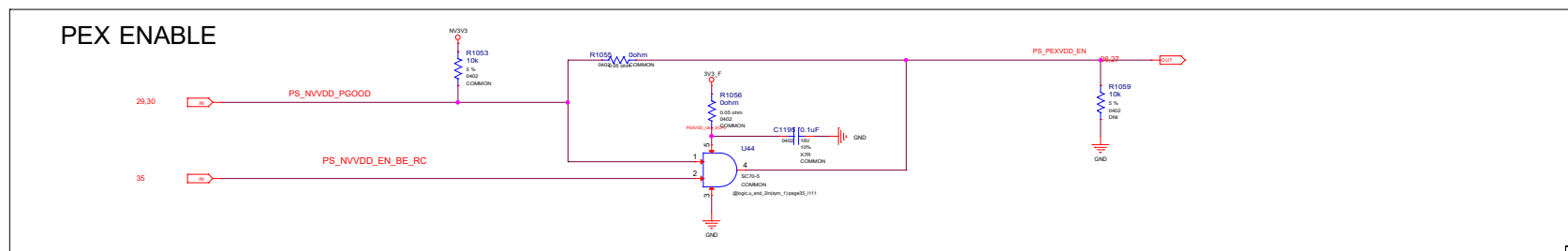
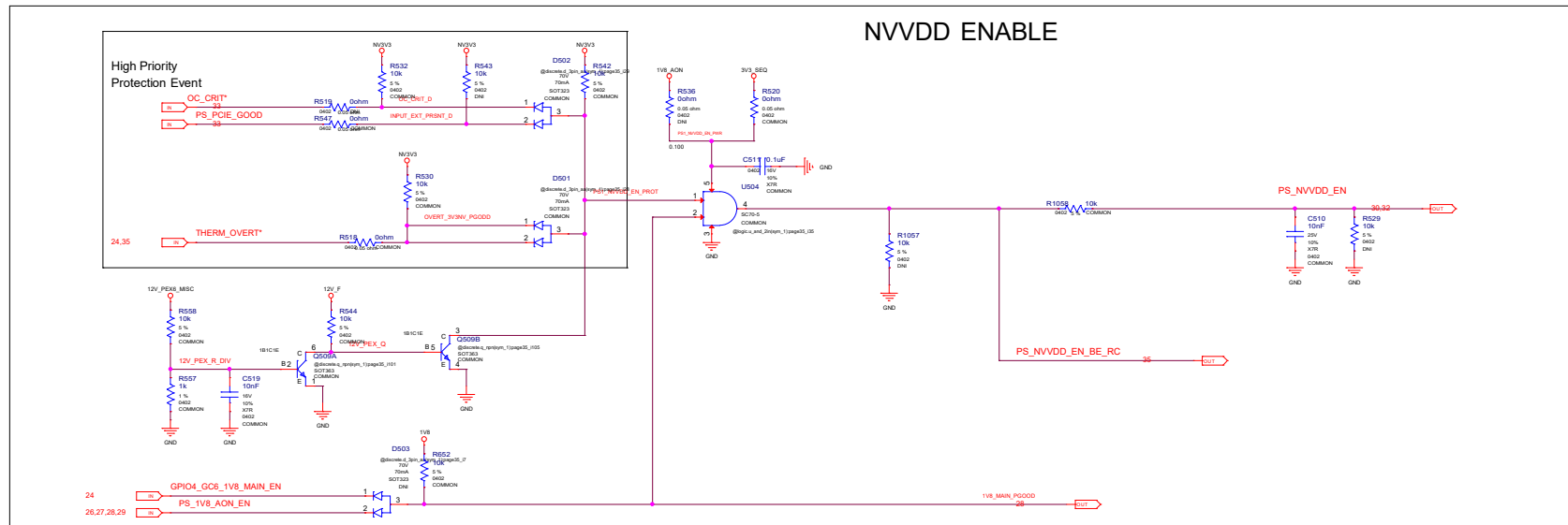
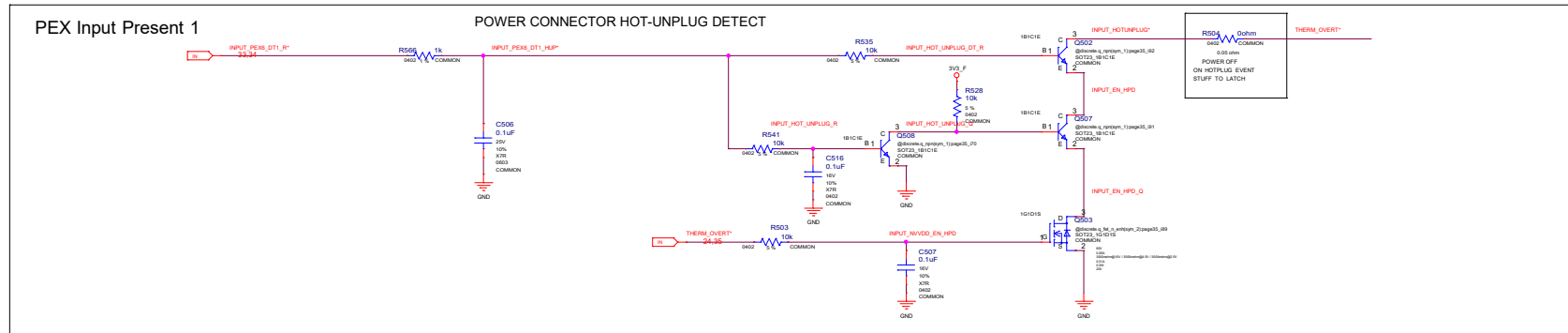
GUIDES CURRENT FROM PEX EDGE TO PEX 6 PIN INPUT AREA



PEX Input - Power Level/PSI* Control



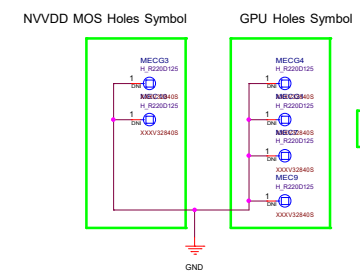
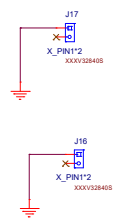
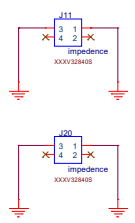
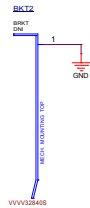
GeForce Logo LED



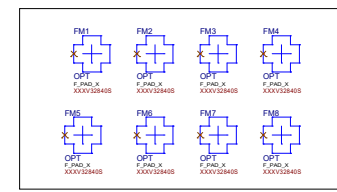


remove 5V LED NET

Brackets:



Remove: MEC12/MEC13/MEC14/MEC15/MEC11/MEC8/MECG2/MECG1



Page: 18	DVI-D 同 差 奇 偶 線 重 疊
Page: 19	Remove DP
Page: 20	Remove DP
Page: 22	from HDMI change to DP
Page: 24	Remove gpio 24 DP HPD Remove Remove gpio 18 DP HPD remove LED NET gpio 17 , from HDMI change to DP HPD
Page: 27	將 1.8V to PEX-VDD convertor
Page: 29	將 0402 MLCC*2 for L side mos
Page: 30	change PWM to I32-9509POC-U33
Page: 31	remove phase1 & phase2 driver IC
Page: 32	change phase3 driver IC to I33-536031C-T07 remove phase4
Page: 33	Remove COALY 8-PIN 6-PIN 短 接 線
Page: 36	remove 5V LED NET
Page: 37	Remove: MEC12/MEC13/MEC14/MEC15/MEC11/MEC8/MECG2/MECG1