

3A 6000- i

V1.3

2025 03





.....	III
.....	IV
1.	1
1.1	1
1.2	2

§ 15
J 15 5 J

4.2	31
5.	32
5.1	32
5.2	32
5.2.1	33
5.2.2	33
5.3	34
6.	35
6.1	35
6.2	35
7.	37
7.1	37
7.2 TDP	37
7.3	

1.1	.....	2
1.2	.....	3
2.1	.....	7
3.1 HT	.....	25
3.2	.....	28
3.3	.....	29
3.4	.....	29
7.1	.....	38
9.1 70	.....	42
9.2 40	.....	42
10.1	.....	44
10.2	.....	45

1.1	.....	1
1.2	.....	3
2.1	.....	8
2.2 HT	.....	8
2.3 DDR4	.....	11
2.4	.....	18
2.5 SPI	.....	20
2.6 UART	.....	20
2.7 I2C	.....	20
2.8 AVS	.....	20
2.9	.....	21
2.10 JTAG	.....	21
2.11	.....	22
2.12 HT	.....	22
2.13 GPIO	.....	23
2.14 JTAG	.....	24
2.15	.....	24
4.1	.....	31
5.1	.....	32
5.2	.....	33
7.1	.....	37
7.2	.....	37
7.3	.....	37
7.4	.....	37
9.1	.....	40
9.2	.....	40
9.3	.....	40
9.4	.....	41
9.5	.....	41

1.

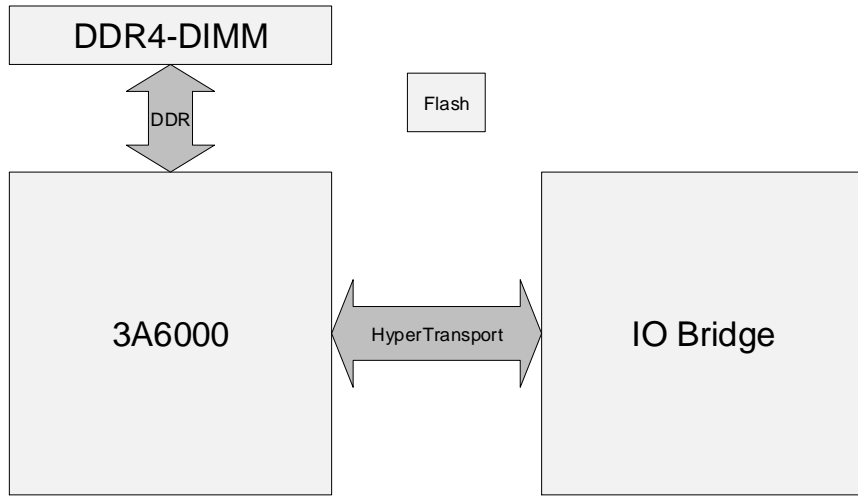
1 32

2 32 64

SoC 3

64 10





ROM	Read-Only Memory	
ECC	Error Correcting Code	
PCI e	Peripheral Component Interconnect express	
DDR4		
DI MM	Dual In-line Memory Modules	
UDI MM	Unbuffered Dual In-line Memory Modules	
SODI MM	Small Outline Dual In-line Memory Module	
RDI MM	Registered Dual In-line Memory Modules	
LRDI MM	Load-Reduced Dual In-line Memory Modules	
JTAG		
Loongnix		

1.7

1.7.1

3A6000-i

3A6000

3A6000-i

3A6000

1.7.2

LoongArch

1.7.3

1

PMON UEFI

2

Loongnix

2.

3A6000 1190

.....HyperTransport

.....DDR4 SDRAM

.....

..... I/O

.....

.....JTAG

.....

.....

.....

.....GPIO

.....SE

2.1



2.2

2.1

I	
O	
I/O	
A	

2.3

2.3.1 HyperTransport

3A6000 1 I/O HyperTransport HT

HyperTransport

16

16

2

2

2

2

4

HyperTransport

HyperTransport

LDT_STOPn

HT

HT_LDT_STOPn

3A6000

HyperTransport

50KChm

2.2 HT

HT0						
		/				
HT_PowerCK	A5	I/O	HT	PowerCK	VDDE_I/O	
HT_Resetn	A7	I/O	HT	Resetn	VDDE_I/O	
HT_Ldt_Stopn	B7	I/O	HT	Ldt_Stopn	VDDE_I/O	

HT_Ldt_reqn	A6	I/O	HT	Ldt_Reqn	VDDE_I/O
HT_Tx_CADp[15: 0]	C10 A11 C12 A13 C14 A15 C16 A17 G10 E11 G12 E13 G14 E15 G16 E17	O	HT		VDD_HT
HT_Tx_CADn[15: 0]	D10 B11 D12 B13 D14 B15 D16 B17 H10 F11 H12 F13 H14 F15 H16 F17	O	HT		VDD_HT
HT_Tx_CTLP[1: 0]	C8 G8	O	HT		VDD_HT
HT_Tx_CTLn[1: 0]	D8 H8	O	HT		VDD_HT
HT_Tx_CLKp[1: 0]	A9 E9	O	HT		VDD_HT
HT_Tx_CLKn[1: 0]	B9 F9	O	HT		VDD_HT
HT_Rx_CADp[15: 0]	D20 B21 D22 B23	I	HT		VDD_HT

	D24 B25 D26 B27 G20 E21 G22 E23 G24 E25 G26 E27				
HT_Rx_CADn[15: 0]	C20 A21 C22 A23 C24 A25 C26 A27 H20 F21 H22 F23 H24 F25 H26 F27	I	HT	VDD_HT	
HT_Rx_CTLp[1: 0]	D18 G18	I	HT	VDD_HT	
HT_Rx_CTLn[1: 0]	C18 H18	I	HT	VDD_HT	
HT_Rx_CLKp[1: 0]	B19 E19	I	HT	VDD_HT	
HT_Rx_CLKn[1: 0]	A19 F19	I	HT	VDD_HT	
HT_REXT		I	HT	800	VDD_HT

2. 3. 2DDR

RA

3A6000

9
 15
 2 BANK
 2 BANK GROUP
 4
 4
 4
 4
 4 ODT(On Die Termination)
 1
 1
 1

DDR 2.3 3A6000

2.3 DDR4

		/			
MCO_DQ[63:0]	AB1	I/O		VDDI_Q_DDR	
	AC3				
	AE2				
	AE1				
	AB3				
	AB2				
	AD1				
	AE3				
	AG1				
	AH3				
	AK2				
	AK1				
	AG3				
	AG2				
	AJ1				
	AK3				
	AM				
	AN3				
	AR1				
	AT2				
AN8					
AN2					
AP1					

		/			
	AR2				
	AU4				
	AR5				
	AT7				
	AU7				
	AR4				
	AT4				
	AU6				
	AR7				
	AR30				
	AR31				
	AU33				
	AT33				
	AT30				
	AU30				
	AR32				
	AR33				
	AR35				
	AT36				
	AN36				
	AN37				
	AU35				
	AT35				
	AP37				
	AN35				
	AL37				
	AK35				
	AH36				
	AH37				
	AL35				
	AL36				
	AJ37				
	AH35				
	AF37				
	AE35				
	AC36				
	AC37				
	AF35				
	AF36				
	AD37				
	AC35				
MCO_CB[7: 0]	AR9 AP9	I/O	ECC	VDDI_O_DDR	

		/			
	T6				
	V7				
	V6				
	AA5				
	AB7				
	AD5				
	AD6				
	AA7				
	AA6				
	AC5				
	AD7				
	AF5				
	AG7				
	AJ5				
	AJ6				
	AF7				
	AF6				
	AH5				
	AJ7				
	AL5				
	AL6				
	AN8				
	AN8				
	AL8				
	AL7				
	AM7				
	AN7				
	AN27				
	AJ27				
	AK29				
	AJ29				
	AK27				
	AL27				
	AN29				
	AL29				
	AN33				
	AN81				
	AK33				
	AK32				
	AN31				
	AN32				
	AL33				
	AK31				

		/			
	AB5 AG5 AM5 AN28 AM83 AG33 AB33 AF9				
MC1_A[13: 0]	AL20 AK16 AM7 AL16 AJ15 AL15 AM5 AK14 AJ14 AM3 AN21 AL14 AN13 AK23	0		VDDI_O_DDR	
MC1_A17	AJ24	0		VDDI_O_DDR	
MC1_BA[1: 0]	AL21 AN20	0	Bank	VDDI_O_DDR	
MC1_BG[1: 0]	AM2 AJ13	0	Bank	VDDI_O_DDR	
MC1_VEn	AL22	0	A14	VDDI_O_DDR	
MC1_CASn	AN23	0	A15	VDDI_O_DDR	
MC1_RASn	AK21	0	A16	VDDI_O_DDR	
MC1_SCSn[3: 0]	AN22 AL24 AJ22 AN25	0		VDDI_O_DDR	
MC1_CKE[3: 0]	AK12 AK11 AM1 AM0	0		VDDI_O_DDR	
MC1_CKp[3: 0]	AL18 AK17 AK19 AN19	0		VDDI_O_DDR	
MC1_CKn[3: 0]	AK18	0		VDDI_O_DDR	

		/			
	AJ17 AJ19 AM9				
MC1_ODT[3:0]	AL23 AL25 AM24 AK25	0	ODT	VDDI_O_DDR	
MC1_Resetn	AL10	0		VDDI_O_DDR	
MC1_ACTn	AL12	0		VDDI_O_DDR	
MC1_PAR	AK20	0		VDDI_O_DDR	
MC1_ALERTn	AK13	I/O	CRC	VDDI_O_DDR	
MC1_REXT	AK10	A	240	VDDI_O_DDR	

2.3.3

2.4

50KChm

2.4

		/				
SYSRESETn	M4	I	SYSCLK	SYSCLK	VDDE_I/O	
CHI_P_CONFIG[3:0]	L4 K4 J4 H3	I	CHI_P_CONFIG[0]	SE	VDDE_I/O	4' b0010
			CHI_P_CONFIG[1]	HT Gen1		
			CHI_P_CONFIG[2]			
			CHI_P_CONFIG[3]	DCDL		
CHI_P_CONFIG[9:4]	K3 K2 J2 J3 H1 H2	I	[9]	1' b1 HT_PLL CHI_P_CONFIG[7] 1' b0 CHI_P_CONFIG[7]	VDDE_I/O	6' b010100
			[8]	1' b1 HT_PLL SYSCLK 1' b0 HT_PLL		
			[7]	1' b0 PHY 6.4GHz 1' b1 PHY 4.8GHz		
			[6:5]			
			[4]	1- 25MHz 0- 100MHz		

SYSRESETn

3A6000

SYSCLK



SYSRESETn

SYSRESETn

SYSRESETn

64K SYSCLK

3A6000

2.3.4

3A6000

I/O

SPI

UART

I2C

AVS

SPI

SPI flash

SPI

4

SPI

SPI

UART

/

16

FI FO

NS16550A

I2C

SDA

SCL

400kbps

3A6000

I2C

AVS

I2C



I2C UART AVS

I/O

SPI

Flash

17mA 35mA

2.5 SPI

		/			
SPI_SCK	H6	0	SPI	VDDE_I/O	
SPI_SDO	K7	I/O	SPI	VDDE_I/O	
SPI_SDI	L8	I/O	SPI	VDDE_I/O	
SPI_WPh	J5	I/O	SPI	VDDE_I/O	
SPI_HOLDn	J7	I/O	SPI	VDDE_I/O	
SPI_CS _n *	J6	0	SPI	VDDE_I/O	

*. SPI GPI00-1 2 CSn

2.6 UART

/					
UART0_RXD	UART_RXD	K6	I		

02030301

2.3.5

3A6000 1 NMI n 16 GPIO

NMI HT

GPIO

INTO-3

NMI n

50KOhm

2.9

		/			
NMI n	NMI	I		VDDE_I/O	

2.3.6 JTAG

3A6000 JTAG

JTAG

JTAG

50KOhm

2.10 JTAG

		/		
TDI	V2	I	JTAG	VDDE_I/O
TDO	V3	O	JTAG	VDDE_I/O
TMS	W1	I	JTAG	VDDE_I/O

TR



GPI O

GPI O

GPI O

17mA 35mA

2.13 GPI O

GPI O					
0	GPI O00	M8	SPI_CSn1		VDDE_I O
1	GPI O01	K1	SPI_CSn2		VDDE_I O
2	GPI O02	L2	UART1_RXD		VDDE_I O
3	GPI O03	N3	UART1_TXD		VDDE_I O
4	GPI O04	L1	UART1_RTS		VDDE_I O
5	GPI O05	M2	UART1_CTS		VDDE_I O
6	GPI O06	N2	UART1_DTR		VDDE_I O
7	GPI O07	P3	UART1_DSR		VDDE_I O
8	GPI O08	N1	UART1_DCD		VDDE_I O
9	GPI O09	P1	UART1_RI		VDDE_I O
10	GPI O10	T1	-		VDDE_I O
11	GPI O11	P2	-		VDDE_I O
12	GPI O12	R3	-		VDDE_I O
13	GPI O13	T3	-		VDDE_I O
14	GPI O14	R2	PROCHOTn		VDDE_I O
15	GPI O15	T2	THERMTRIPn		VDDE_I O

PROCHOTn

PROCHOTn 0

prochotn_freq_scale PROCHOTn

prochotn_o_sel 4

THERMTRIPn

thermtripn_o_sel

4

2.3.9

3A6000

DOTEST



2.14 JTA

3.

3.1 HyperTransport

3A6000 HyperTransport IO HT
16

3.1.1

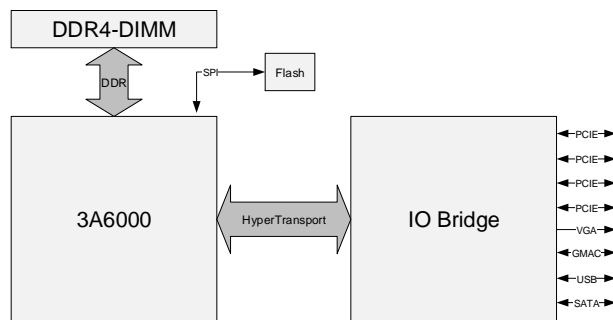
HyperTransport

HyperTransport 1.03/HyperTransport 3.0
IO 200 - 3200MHz
IO Cache

3.1.2

3A6000 HT IO

3A6000 IO Cache HyperTransport
IO Cache Cache



3.1 HT

3.2 DDR

3A6000 DDR4 SDRAM
 JESD79-4

3.2.1

3A6000		4 CS	2 CS
	2		4
3A6000			
CPU			
3A6000			/
	/		
3A6000			
		DCC	
ECC	1	2	1
RDI MM	UDI MM	So-DI MM	3DS
x8	x16		
133-800MHz			
DDR4-3200			

3.2.2

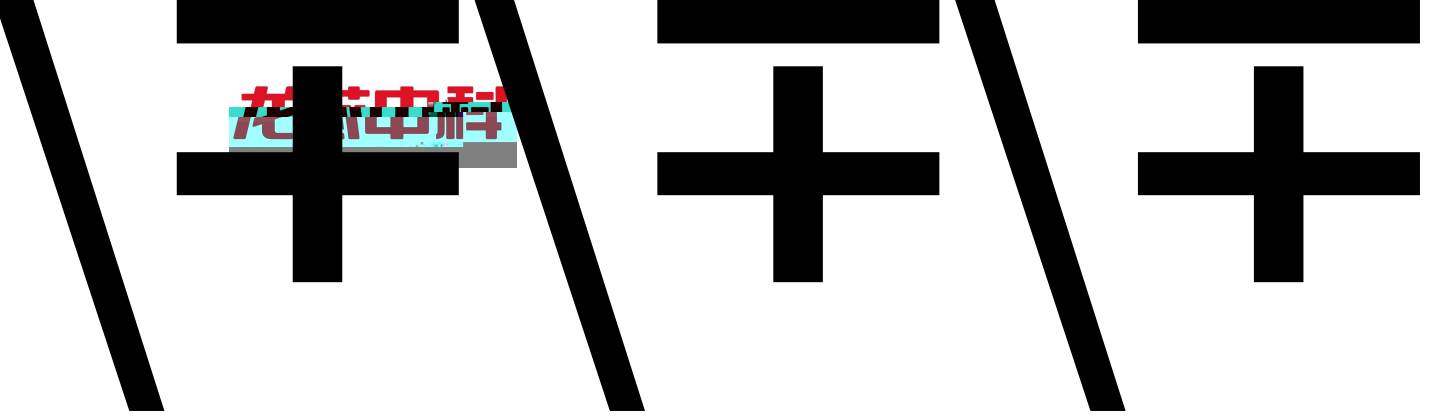
- Init_start 0x010 1 Init_start
- DRAM
- (1) Init_start 0x010
- 0
- (2) Init_start 0x010 1
- (3) PHY DLL
- Dll_init_done 0x030 Dll_value_ck 0x030
- Dll_bypass 0x030
- (4) DLL bypass DRAM DRAM
- MRS ZQCL
- (5) Dram_init 0x010

3.2.3

- STR pad_reset_po 0x808
- DDR_RESETEn
- (1) pad_reset_po[1:0] = 2'b00
- DDR_RESETEn

3.2

(2) `pad_reset_po[1:0] = 2'b10`



3.3

(3) `pad_reset_po[1:0] = 2'b01`
DDR_RESETh

3.4



2

STR

3

4.

4.1

3A6000 SPI Flash

4.2

DOTESTn CHIP_CONFIG

4.1

DOTESTn

CHIP_CONFIG[9]

CHIP_CONFIG[8]

HT

SYS_CLOCK

5.

5.1

3A6000

SYS_CLOCK

SYSCLK

5.1

Boot Clock	SYS_CLOCK	*1		SPI	UART
				I2C	
				SYS_PLL	
Main Clock	SYS_PLL	PLL		Node Clock	Core Clock
				HTcore Clock	
				LA132 Clock	
				Mem Clock	Stable Clock
					HT
Node Clock	Main Clock	*1			
Core0 Clock	Main Clock	*1		0	
Core1 Clock	Main Clock	*1		1	
Core2 Clock	Main Clock	*1		2	
Core3 Clock	Main Clock	*1		3	
				HT	
HTcore Clock	Node Clock	*1		1.25GHz	
				LA132	
LA132 Clock	Main Clock	*1			

5.2

	/	(MHz)		PLL	Core	VDDE_I/O
SYSCLK	I	25/100				
HT_CLKp/ HT_CLKn	I	200	HT		H	



*_PLL VDD_HT VDDI_O_DRR VDDE_I/O
3A6000

± 25mV

7.

7.1

7.1

	(° C/W)
	0.726
	0.070
	0.656

LS3A6000-i 30KG

7.2 TDP

7 v



Preheat

Temperature Min (T_{min})

150 ° C

Temperature Max (T_{max})

200 ° C

Time (T_{min} to T_{max}) (ts)

60-180 seconds

Time (rs) t

8.

9.

9.1

9.1

VDDN		-0.3	1.35	V
VDDP		-0.3	1.35	V
VDDE_I/O	I/O	-0.3	1.9	V
VDDI_O_DDR	DDR I/O	-0.3	1.26	V
VDD_HT	HT I/O	-0.3	1.3	V
VDD_PHY_DDR	DDRPHY	-0.3	1.35	V
VDD_PLL_DDR	DDR PLL	-0.3	1.4	V
VDD_PLL_SE	SE PLL	-0.3	1.4	V
VDD_PLL_HT	HT PLL	-0.3	1.4	V
VDD_PLL_SYS	SYS PLL	-0.3	1.4	V
VDD_PLL_1V0BU	1V0 Back Up PLL	-0.3	1.1	V
VDD_PLL_1V8BU	1V8 Back Up PLL	-0.3	1.9	V

ESD

ESD HBM 2000V

MSL3

9.2 m

ΓΓJ

ΓΓJ B > B

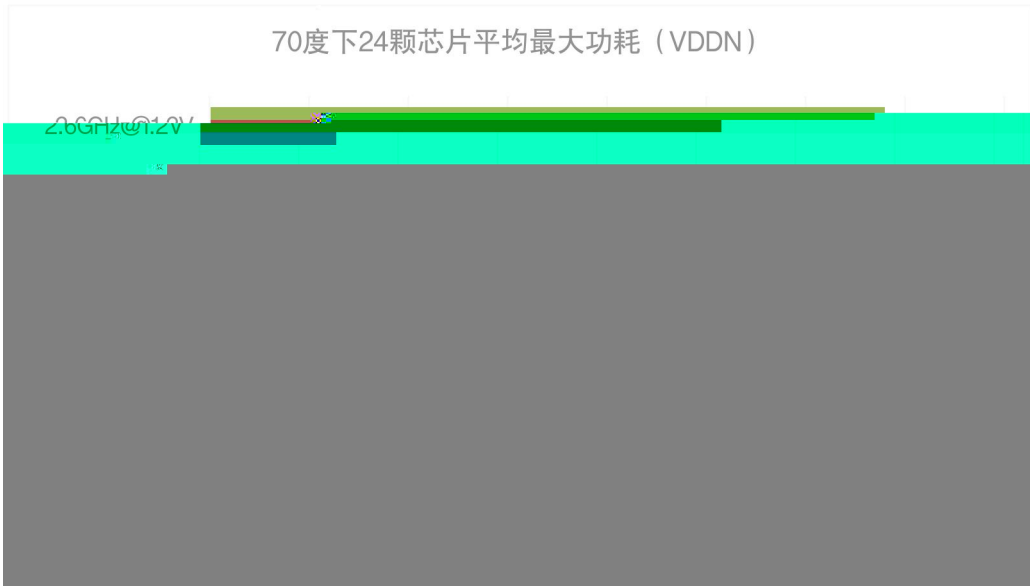
B



VDDP			0.9V	1.05V	1.3V	3A
VDDDE_IO		IO	1.7V	1.8V	1.9V	1A
VDDIO_DDR	DDR	IO	1.14V	1.2V	1.26V	5A
VDD_HT	HT	IO	1.1V	1.2V	1.3V	3A

9.3.2

VDDN 24



9.3.3

VDDN





b

0

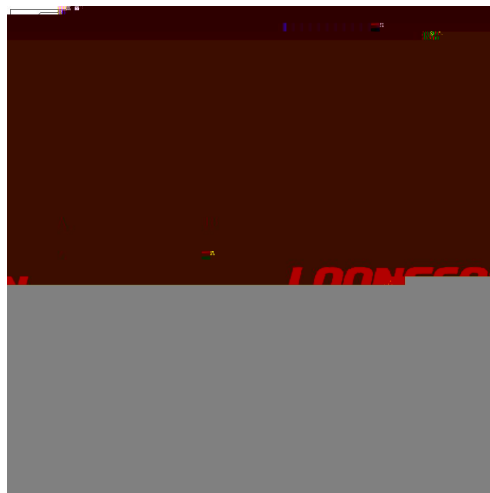
11.

11.1

3A6000

LS	3A	6000	-A
			-i

11.2 3A6000-i



- 1
- 2 LS3A6000-i
- 3 Cored By™ LA664
- 4 A
- 5 B
- 6 LOONGSON
- 7 C
- 8

	6	7	8	9	10
A	HT_LDT_REQN A6	HT_RSTN A7	VSS A8	HT_TX_CLKOP A9	VSS A10
B	SE_UART0_RX B6	HT_LDT_STOPN B7	VSS B8	HT_TX_CLKON B9	VSS B10
C	SE_CSPI_CSN C6	VSS C7	HT_TX_CTL0P C8	VSS C9	HT_TX_CAD00P C10
D	SE_CSPI_I01 D6	VSS D7	HT_TX_CTL0N D8	VSS D9	HT_TX_CAD00N D10
E	SE_RNG0_PE E6	SE_CSPI_I02 E7	VSS E8	HT_TX_CLK1P E9	VSS E10
F	SE_RNG1_DATA F6	HT_REXT F7	VSS F8	HT_TX_CLK1N F9	VSS F10
G	SE_GPI003 G6	VSS G7	HT_TX_CTL1P G8	VSS G9	HT_TX_CAD08P G10
H	SPI_SCK H6	VSS H7	HT_TX_CTL1N H8	VSS H9	HT_TX_CAD08N H10
J	SPI_CSN J6	SPI_HOLDN J7			



	11	12	13	14	15
A	HT_TX_CAD01P A11	VSS A12	HT_TX_CAD03P A13	VSS A14	HT_TX_CAD05P A15
B	HT_TX_CAD01N B11	VSS B12	HT_TX_CAD03N B13	VSS B14	HT_TX_CAD05N B15
C	VSS C11	HT_TX_CAD02P C12	VSS C13	HT_TX_CAD04P C14	VSS C15
D	VSS D11	HT_TX_CAD02N D12	VSS D13	HT_TX_CAD04N D14	VSS D15
E	HT_TX_CAD09P E11	VSS E12	HT_TX_CAD11P E13	VSS E14	HT_TX_CAD13P E15
F	HT_TX_CAD09N F11	VSS F12	HT_TX_CAD11N F13	VSS F14	HT_TX_CAD13N F15
G	VSS G11	HT_TX_CAD10P G12	VSS G13	HT_TX_CAD12P G14	VSS G15
H	VSS H11	HT_TX_CAD10N H12	VSS H13	HT_TX_CAD12N H14	VSS H15
J	VDD_HT J11	VSS J12	VDD_HT J13	VSS J14	VDD_HT J15
K	VSS K11	VDD_HT K12	VSS K13	VDD_HT K14	VSS K15
L	VDDP L11	VDDP L12	VDDP L13	VDDP L14	VDDP L15
M	VDDP M1	VSS M2	VSS M3		
N	VDDP N11	VSS N12	VSS N13		
P	VDDP P11	VDDN P12	VDDN P13		
R	VDDP R11	VDDN R12	VDDN R13		
T	VSS T11	VSS T12	VSS T13		
U	VDDN U11	VDDN U12	VDDN U13		
V	VDDN V11	VDDN V12	VDDN V13		
W	VSS W11	VSS W12	VSS W13		
Y	VDDN Y11	VDDN Y12	VDDN Y13		
AA	VDDN AA11	VDDN AA12	VDDN AA13		
AB	VDDN_SENSE+	VSS	VSS		



AB11	AB12	AB13
------	------	------

AC

	16	17	18	19	20
A		HT_TX_CAD07P A17		HT_RX_CLKON A19	
B	VSS B16	HT_TX_CAD07N B17	VSS B18	HT_RX_CLKOP B19	VSS B20
C	HT_TX_CAD06P C16	VSS C17	HT_RX_CTLON C18	VSS C19	HT_RX_CAD00N C20
D	HT_TX_CAD06N D16	VSS D17	HT_RX_CTL0P D18	VSS D19	HT_RX_CAD00P D20
E	VSS E16	HT_TX_CAD15P E17	VSS E18	HT_RX_CLK1P E19	VSS E20
F	VSS F16	HT_TX_CAD15N F17	VSS F18	HT_RX_CLK1N F19	VSS F20
G	HT_TX_CAD14P G16	VSS G17	HT_RX_CTL1P G18	VSS G19	HT_RX_CAD08P G20
H	HT_TX_CAD14N H16	VSS H17	HT_RX_CTL1N H18	VSS H19	HT_RX_CAD08N H20
J	VSS J16	VDD_HT J17	VSS J18	VDD_HT J19	VSS J20
K	VDD_HT K16	VSS K17	VDD_HT K18	VSS K19	VDD_HT K20
L	VDDP L16	VDDP L17	VDDP L18	VDDP L19	VDDP L20
M					
N					
P					
R					
T					
U					
V					
W					
Y					
AA					
AB					
AC					
AD					
AE					
AF					
AG	VSS AG16	VDD_PHY_DDR AG17	VDD_PHY_DDR AG18	VDD_PHY_DDR AG19	VDD_PHY_DDR AG20
AH	VDDI_O_DDR AH16	VSS AH17	VSS AH18	VSS AH19	VSS AH20
AJ	VDDI_O_DDR	MC1_CK1N	VDDI_O_DDR	MC1_CK2N	VDDI_O_DDR

	AJ16	AJ17	AJ18	AJ19	AJ20
AK	MC1_A01 AK16	MC1_CK1P AK17	MC1_CKON AK18	MC1_CK2P AK19	MC1_PAR AK20
AL	MC1_A03 AL16	VDDI_O_DDR AL17	MC1_CKOP AL18	VDDI_O_DDR AL19	MC1_A00 AL20
AM	VDDI_O_DDR AM16	MC1_A02 AM17	VDDI_O_DDR AM18	MC1_CK3N AM19	VDDI_O_DDR AM20
AN	VDDI_O_DDR AN16	MCO_A05 AN17	VDDI_O_DDR AN18	MC1_CK3P AN19	MC1_BA1 AN20
AP	MCO_A07 AP16	MCO_A06 AP17	MCO_A01 AP18	MCO_CK1N AP19	VDDI_O_DDR AP20
AR	MCO_A11 AR16	VDDI_O_DDR AR17	MCO_A03 AR18	MCO_CK1P AR19	MCO_CKON AR20
AT	MCO_A09 AT16	MCO_A08 AT17	MCO_A04 AT18	MCO_A02 AT19	MCO_CKOP AT20
AU		VDDI_O_DDR AU17		VDDI_O_DDR AU19	

	21	22	23	24	25
A	HT_RX_CAD01N A21		HT_RX_CAD03N A23		



AC	AB26	AB27	AB28	AB29	AB30
	VDDN	VSS	VSS	VSS	MC1_DC60
	AC26	AC27	AC28	AC29	AC30
AD	VDDN	VSS	VSS	VSS	VSS
	AD26	AD27	AD28	AD29	AD30
AE	VSS	VSS	VSS	VSS	VSS
	AE26	AE27	AE28	AE29	AE30
AF	VSS	VSS	VDD_PHY_DDR	VSS	
	AF26	AF27	AF28	AF29	
AG	VSS	VDD_PHY_DDR	VDD_PHY_DDR	VDD_PHY_DDR	VSS
	AG26	AG27	AG28	AG29	AG30
AH	VSS	VSS	VSS	VSS	VSS
	AH26	AH27	AH28	AH29	AH30
AJ	VSS	MC1_DC33	MC1_DQ504P	MC1_DC35	VSS
	AJ26	AJ27	AJ28	AJ29	AJ30
AK	VSS	MC1_DC36	MC1_DQ504N	MC1_DC34	VSS
	AK26	AK27	AK28	AK29	AK30
AL	VSS	MC1_DC37	VSS 3	MC1_DC39SS	
	AL26	AL27	AL28		

K30

VT ES FS E 2 W 2 D30

S

S BS



	31	32	33	34	35	36	37
A	VDDP	VSS	VDDN	VDDN	VSS	VDDN	
	A31	A32	A33	A34	A35	A36	
B	VDDP	VSS	VDDN	VDDN	VSS	VDDN	VDDN
	B31	B32	B33	B34	B35	B36	B37
C	VDDP	VSS	VDDN	VDDN	VSS	VDDN	VDDN
	C31	C32	C33	C34	C35	C36	C37
D	VDDP	VSS	VDDN	VDDN	VSS	VDDN	VDDN
	D31	D32	D33	D34	D35	D36	D37
E	VDDP	VSS	VDDN	VDDN	VSS	VDDN	
	E31	E32	E33	E34	E35	E36	

AB	MC1_DQS07N	VSS	MC1_DM7N	VSS	VSS	VSS	VSS
	AB31	AB32	AB33	AB34	AB35	AB36	AB37



N

HT_RX_CTL0P	19693.683
HT_RX_CTL1N	19609.49
HT_RX_CTL1P	19636.557
HT_TX_CAD00N	24841.845
HT_TX_CAD00P	24881.728
HT_TX_CAD01N	24885.068
HT_TX_CAD01P	24930.916
HT_TX_CAD02N	24821.225
HT_TX_CAD02P	24861.108
HT_TX_CAD03N	24807.051
HT_TX_CAD03P	24855.162
HT_TX_CAD04N	24790.656
HT_TX_CAD04P	24830.539
HT_TX_CAD05N	24794.284
HT_TX_CAD05P	24815.279
HT_TX_CAD06N	24806.327
HT_TX_CAD06P	24843.906
HT_TX_CAD07N	24857.139
HT_TX_CAD07P	24902.986
HT_TX_CAD08N	24894.115
HT_TX_CAD08P	24932.341
HT_TX_CAD09N	24878.895
HT_TX_CAD09P	24919.109
HT_TX_CAD10N	24787.507
HT_TX_CAD10P	24819.023
HT_TX_CAD11N	24821.277
HT_TX_CAD11P	24867.166
HT_TX_CAD12N	24814.684
HT_TX_CAD12P	24849.95
HT_TX_CAD13N	24786.215
HT_TX_CAD13P	24812.429
HT_TX_CAD14N	24958.103
HT_TX_CAD14P	24917.2
HT_TX_CAD15N	24792.489
HT_TX_CAD15P	24805.095
HT_TX_CLK0N	24844.085
HT_TX_CLK0P	24871.859
HT_TX_CLK1N	24853.75
HT_TX_CLK1P	24819.405
HT_TX_CTL0N	24794.294
HT_TX_CTL0P	24834.177
HT_TX_CTL1N	24887.652

HT_TX_CTL1P	24848. 169
MCO_A00	16677. 264
MCO_A01	16711. 907
MCO_A02	16709. 824
MCO_A03	16723. 271
MCO_A04	16714. 412
MCO_A05	16701. 275
MCO_A06	16739. 256
MCO_A07	16751. 871
MCO_A08	16749. 37
MCO_A09	16735. 709
MCO_A10	16709. 377
MCO_A11	16732. 479
MCO_A12	16728. 901
MCO_A13	16735. 503
MCO_A17	16735. 523
MCO_ACTN	16754. 93
MCO_ALERTN	16724. 656
MCO_BAO	16755. 549
MCO_BA1	16739. 634
MCO_BGO	16704. 839
MCO_BG1	16736. 822
MCO_CASN	16751. 741
MCO_CBO	17628. 548
MCO_CB1	17661. 191
MCO_CB2	17633. 791
MCO_CB3	17597. 016
MCO_CB4	17597. 199
MCO_CB5	17622. 1
MCO_CB6	17626. 458
MCO_CB7	17580. 124
MCO_CK0N	16822. 905
MCO_CK0P	16823. 023
MCO_CK1N	16737. 138
MCO_CK1P	16729. 792
MCO_CK2N	16823. 476
MCO_CK2P	16818. 12
MCO_CK3N	16808. 18
MCO_CK3P	16805. 461
MCO_CKE0	16709. 536
MCO_CKE1	16725. 297
MCO_CKE2	16668. 417

MCO_DKE3	16729.08
MCO_DM0	19961.98
MCO_DM1	17050.6
MCO_DM2	20011.9
MCO_DM3N	20276.5
MCO_DM4#NM	17950.779
MCO_DM5N	19607.741
MCO_DM6N	17013.839
MCO_DM7N	14286.483
MCO_DM8N	17586.295
MCO_DC00	13970.54
MCO_DC01	13933.533
MCO_DC02	13960.408
MCO_DC03	13961.392
MCO_DC04	13973.737
MCO_DC05	13962.222
MCO_DC06	13960.409
MCO_DC07	14008.071
MCO_DC08	16981.6
MCO_DC09	16958.885
MCO_DC10	16988.822
MCO_DC11	16945.336
MCO_DC12	16941.554
MCO_DC13	16980.148
MCO_DC14	16952.004
MCO_DC15	16960.234
MCO_DC16	20502.042
MCO_DC17	20524.667
MCO_DC18	20512.058
MCO_DC19	20583.795
MCO_DC20	20518.992
MCO_DC21	20516.791
MCO_DC22	20546.088
MCO_DC23	20522.411
MCO_DC24	

MCO_DCS05N	19707. 554
MCO_DCS05P	19692. 263
MCO_DCS06N	17085. 359
MCO_DCS06P	17069. 946
MCO_DCS07N	14307. 867
MCO_DCS07P	14320. 31
MCO_DCS08N	17662. 045
MCO_DCS08P	17678. 569
MCO_CDT0	16779. 723
MCO_CDT1	16725. 417
MCO_CDT2	16692. 806
MCO_CDT3	16741. 558
MCO_PAR	16717. 145
MCO_RASN	16711. 593
MCO_RESETN	16724. 844
MCO_REXT	18012. 802
MCO_SCSNO	16706. 956
MCO_SCSN1	16717. 756
MCO_SCSN2	16758. 624
MCO_SCSN3	16737. 13
MCO_VEN	1270. 033
MC1_A00	13723. 71
MC1_A01	13728. 098
MC1_A02	13733. 475
MC1_A03	13705. 028
MC1_A04	13770. 212
MC1_A05	13751. 524
MC1_A06	13707. 747
MC1_A07	èA02

MC1_CASN	13723.335
MC1_CBO	14190.922
MC1_CB1	14278.193
MC1_CB2	14240.562
MC1_CB3	14268.084
MC1_CB4	14264.42
MC1_CB5	14172.775
MC1_CB6	14311.986
MC1_CB7	14233.866
MC1_CK0N	13773.623
MC1_CK0P	13770.37
MC1_CK1N	13682.334
MC1_CK1P	13693.492
MC1_CK2N	13859.656
MC1_CK2P	13846.056
MC1_CK3N	13715.118
MC1_CK3P	13714.068
MC1_CKE0	13704.364
MC1_CKE1	13727.498
MC1_CKE2	13765.487
MC1_CKE3	13703.843
MC1_DM0N	13554.097
MC1_DM1N	12627.514
MC1_DM2N	14397.959
MC1_DM3N	17149.273
MC1_DM4N	13661.824
MC1_DM5N	17649.475
MC1_DM6N	13248.364
MC1_DM7N	10751.418
MC1_DM8N	14174.843
MC1_D000	13525.985
MC1_D001	13385.588
MC1_D002	13409.627
MC1_D003	13370.933
MC1_D004	13415.912
MC1_D005	13375.692
MC1_D006	13370.687
MC1_D007	13436.511
MC1_D008	12618.441
MC1_D009	12590.019
MC1_D010	12639.881
MC1_D011	12609.778

龙芯中科

MC1_D012

MC1_D013

MC1_D014

12588.178

12609.183

*006.09

MC1_DC54	13214. 811
MC1_DC55	13236. 316
MC1_DC56	10702. 237
MC1_DC57	10722. 43
MC1_DC58	10639. 143
MC1_DC59	10663. 348
MC1_DC60	10725. 416
MC1_DC61	10695. 768
MC1_DC62	10798. 942
MC1_DC63	10733. 163
MC1_DCS00N	13458. 453
MC1_DCS00P	13463. 686
MC1_DCS01N	12658. 765
MC1_DCS01P	12668. 897
MC1_DCS02N	14385. 39
MC1_DCS02P	14386. 706
MC1_DCS03N	17188. 66
MC1_DCS03P	17184. 631
MC1_DCS04N	13689. 048
MC1_DCS04P	13694. 444
MC1_DCS05N	17703. 794
MC1_DCS05P	17701. 343
MC1_DCS06N	13304. 486
MC1_DCS06P	13289. 17
MC1_DCS07N	10755. 771
MC1_DCS07P	10738. 397
MC1_DCS08N	14213. 403
MC1_DCS08P	14210. 808
MC1_CDT0	13742. 092
MC1_CDT1	13736. 597
MC1_CDT2	13727. 341
MC1_CDT3	13684. 637
MC1_PAR	13739. 691
MC1_RASN	13755. 615
MC1_RESETN	13748. 24
MC1_REXT	16947. 674
MC1_SCSNO	13697. 798
MC1_SCSN1	13753. 325
MC1_SCSN2	13702. 364
MC1_SCSN3	13701. 921
MC1_VEN	13709. 759

