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# *Data Sheet*

***NT51007D***

***1200CH TFT LCD Source Driver***

***V0.7***

## Index

INDEX.....	2
REVISE HISTORY .....	3
FEATURES .....	4
GENERAL DESCRIPTION .....	4
FUNCTION BLOCK DIAGRAM .....	5
PAD SEQUENCE (BUMP SIDE) .....	6
PAD DESCRIPTION .....	7
FUNCTION DESCRIPTION .....	11
1. Power on/off sequence .....	11
2. RSDS Receiver and Demultiplexer .....	11
3. MINI-LVDS Data Mapping and Cascade .....	11
4. Relationship between the order of input data and output channels.....	12
5. Relationship between input data and output voltage .....	13
6. Gamma correction resistor ratio .....	14
7. Output Voltage VS Input Data .....	15
ABSOLUTE MAXIMUM RATINGS.....	14
TEMPREATURE .....	16
DC ELECTRICAL CHARACTERISTICS .....	17
AC ELECTRICAL CHARACTERISTICS .....	20
TIMING DIAGRAM .....	22
1. Clock and data input timing diagram 1 .....	22
1.1 TTL mode .....	22
1.2 RSDS mode.....	23
2. Clock and data input timing diagram 2 .....	24
3. Mini-LVDS Timing .....	24
3.1 Timing for receiving data .....	24
3.2 Input Data Timing (Lead Chip) .....	25
3.3 Input Data Timing (Cascade Chip) .....	25
3.4 Last Data Sampling to LD Timing.....	26
3.5 Output Timing .....	26
PAD OUTLINE DIMENSION (BUMP SIDE) .....	27
1. Alignment Mark .....	28
2. Pad Information.....	28
APPENDIX A: PAD COORDINATE .....	29
IMPORTANT NOTICE .....	49

## Revise History

<b>NT51007D Specification Revision History</b>			
<b>Version</b>	<b>Content</b>	<b>Page</b>	<b>Date</b>
0.0	New Release.	-	2011/06/09
0.1	Modify CS/OP function description.	8	2011/07/06
0.2	1. Modify Features - Chip Size. 2. Modify CS function description. 3. Modify relationship between the order of input data and output channels. 4. Modify Pad Information.	4 8 12 28	2011/07/27
0.3	1. Modify Gamma correction resistor ratio. 2. Modify Output Voltage VS Input Data. 3. Modify Mini-LVDS Common Mode CSInput Voltage Range. 4. Modify Data Setup/Hold Time.	14 15 18 21	2011/08/09
0.4	1. Modify Mini-LVDS mode VDD voltage.	18	2011/08/18
0.5	1. Modify Gamma correction resistor ratio. 2. Modify Output Voltage VS Input Data.	14 15	2011/09/16
0.6	1. Modify Output channel selection.	4,5,10	2011/09/26
0.7	1. Modify Mini-LVDS High/Low Input Voltage. 2. Modify Mini-LVDS Common Mode CS Input Voltage Range. 3. Modify RSDS/TTL Data set-up/hold-time. 4. Modify RSDS/TTL time that the last data to LD. 5. Modify DIO Signal Delay Time. 6. Modify DIO Pulse Width. 7. Modify Receive Off to LD Timing. 8. Modify Input Data Timing (Cascade Chip).	18 18 20 20 21 21 21 25	2011/11/15

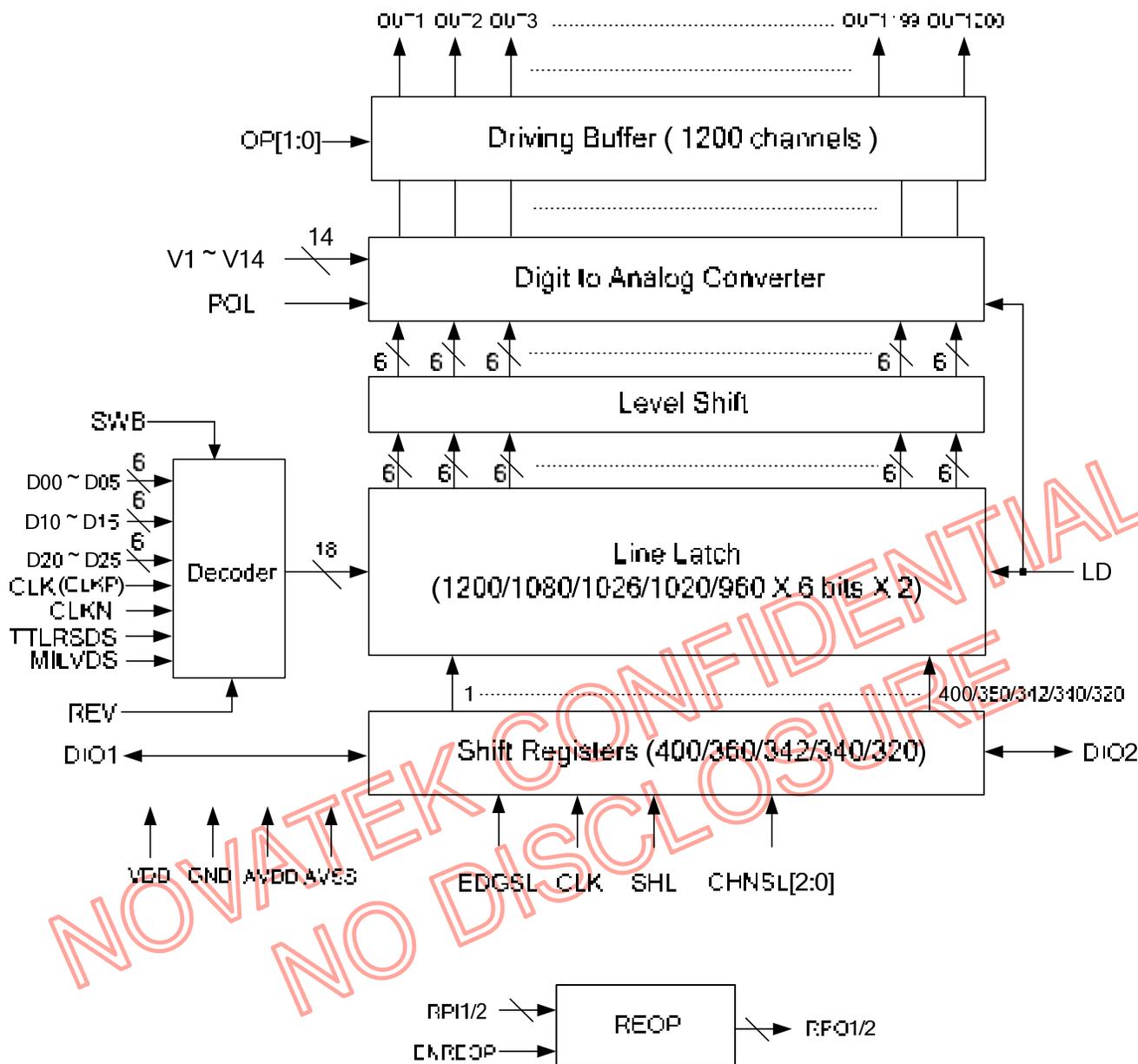
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## Features

- Output: 1200/1080/1026/1020/960 output channels
- 6-bit resolution / 64 gray scale
- Dot inversion with polarity control
- V1 ~ V14 for adjusting Gamma correction
- Power of LCD driving voltage: 6.5V ~ 13.5V
- Output dynamic range: 0.1V ~ AVDD-0.1V
- Power for interface circuit: 2.3V~3.6V
- RSDS mode operating frequency: 65MHz(Typ.) ; 90MHz(Max.)
- TTL mode operating frequency: 50MHz(Typ.) ; 55MHz(Max.)
- Mini-LVDS operating frequency: 270MHz(Max.)
- Mini-LVDS input interface(3 pairs and 6 pairs serial data input) for low EMI.
- Output deviation:  $\pm 20\text{mV}$ ( $V_o = 1.5\text{V} \sim 12\text{V}$ ,  $\text{AVDD} = 13.5\text{V}$ )
- Data inverting for reducing EMI
- Cascade function with bi-direction shift control
- Build in 2 repair OP
- CMOS silicon gate (p-type substrate)
- COG package
- Chip Size : 24010um X 831um · Output Pitch : 19um

## General Description

NT51007D is a 1200/1026/1080/1020/960 channel data driver IC with TTL/RSDS and Mini-LVDS interface for color TFT LCD panels. For lower power dissipation, the circuit architecture with a special method is designed, and dot inversion is suggested on application. For better performance, a wide range of supply voltages and small output deviations are designed in this chip. This chip also supplies 14 sections of voltage-reference select for gamma correction. And the power dissipation on the gamma correction resistors is also concerned, making this chip more suitable for mid or small sized color TFT panels.

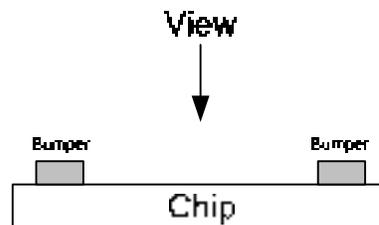
**Function Block Diagram**


**Pad Sequence (Bump Side)**

SHIELDING(1)		DLV(1)
SHIELDING(1)		COM1_T(2)
SHIELDING(1)		RF1(1)
COM1_B(2)	-----	RF01(2)
CP1(1)		CUT1200
CP0(1)		CUT1'99
D12(4)		CUT1'98
SHIELDING(1)		CUT1'87
AVDD(10)		CUT1'86
ENREGOP(3)		CUT1'85
CH4SL2(3)		CUT1'84
GND(8)		CUT1'83
CH4SL1(3)		CUT1'82
VDD(8)		
CH4SL0(1)		
FP1(4)		
CS0(1)		
REV(4)		
CS1(1)		
LD(4)		
SHIELDING(1)		
D25(4)		
D24(4)		
D23(4)		
D22(4)		
D21(4)		
D20(4)		
SHIELDING(1)		
AVSS(10)		
SHIELDING(1)		
V14(4)		
V13(4)		
V12(4)		
V11(4)		
V10(4)		
V9(4)		
V8(4)		
V7(4)		
V6(4)		
V5(4)		
V4(4)		
V3(4)		
V2(4)		
V1(4)		
SHIELDING(1)		
AVDD(10)		
SHIELDING(1)		
D15(4)		
D14(4)		
D13(4)		
D12(4)		
D11(4)		
D10(4)		
D09(4)		
D08(4)		
D07(4)		
D06(4)		
D05(4)		
D04(4)		
D03(4)		
D02(4)		
D01(4)		
D00(4)		
SHIELDING(1)		
CLKN(4)		
CLP(4)		
SIL(3)		
EDGE(3)		
TTP505(3)		
M_VDD(1)		
VDD(8)		
SWB(1)		
GND(8)		
SHIELDING(1)		
AVSS(10)		
SHIELDING(1)		
D101(4)		
TP10(1)		
TP11(1)		
COM2_B(2)	-----	CUT6
SHIELDING(3)		CUT5
		CUT4
		CUT3
		CUT2
		CUT1
		RF02(2)
		RF12(1)
		COM2_T(2)
		COM1(1)

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## Pad Description

Designation	I/O	Description												
<b>Input signal</b>														
D05 ~ D00 D15 ~ D10 D25 ~ D20	I	These pins can be used as TTL, RSDS or Mini-LVDS data input by TTLRSDS and MILVDS pin setting. About data pin definition, please refer to Note1.												
CLK	I	Clock input. Latching source data onto the line latches at the rising or falling edge by EDGSL signal selected. When RSDS input mode, CLK is used as CLKP input pin.												
CLKN	I	The RSDS clock input pairs generate the internal shift clock through the comparison between CLKP and CLKN. When TTL mode, tie to GND.												
SHL	I	Select left or right shift, default = H. SHL="1" : DIO1 → OUT1,2,3 → OUT4,5,6 →→→ OUT1198,1199,1200 = DIO2 SHL="0" : DIO1 = OUT1,2,3 ← OUT4,5,6 ←←← OUT1198,1199,1200 ← DIO2 <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>SHL</th> <th>DIO1</th> <th>DIO2</th> <th>SHIFT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Input</td> <td>Output</td> <td>Right</td> </tr> <tr> <td>0</td> <td>Output</td> <td>Input</td> <td>Left</td> </tr> </tbody> </table>	SHL	DIO1	DIO2	SHIFT	1	Input	Output	Right	0	Output	Input	Left
SHL	DIO1	DIO2	SHIFT											
1	Input	Output	Right											
0	Output	Input	Left											
DIO1 DIO2	I/O	Start pulse signal input/output. When SHL is applied high (SHL="1"), a start high-pulse on DIO1 is latched at the rising edge of the CLK. Then the data are latched serially onto internal latches at the rising or falling edge of the CLK. After all line latches are full with data, 320/340/342/350/400 or 160/170/171/175/200 clocks, a pulse is shifted out through the DIO2 pin at the rising edge of the CLK. This function can cascade two or more devices for dot-size expansion. In normal applications, the DIO2 signal of the first device is connected to the DIO1 of the second stage, and the DIO2 of the second one is connected to the DIO1 of the third, and so on like a daisy chain. In contrast, when SHL is applied low, a start pulse inputs on DIO2, and a pulse outputs through DIO1. *Remark: The input pulse-width of DIO1/2 may be over 1 clock-cycle.												
EDGSL	I	Clock edge selected, default = L. When EDGSL= "0", Latching source data onto the line latches at the rising edge. When EDGSL= "1", Latching source data onto the line latches at the rising edge and falling edge. *Remark: Please reference Clock and data input timing diagram 1. This pin is only for TTL mode.												
LD	I	Latches the polarity of outputs and switches the new data to outputs. 1. At the rising edge, latches the "POL" signal to control the polarity of the outputs. 2. The pin also controls the switch of the line registers that switches the new incoming data to outputs. *Remark: The LD may switch the new data to outputs at any time even if the line data are not completely full.												
POL	I	Polarity selector for the dot-inversion control. Available at the rising edge of LD. "POL" value is latched at the rising edge of "LD" to control the polarity of the even or odd outputs. "POL=1" represents that even outputs are of positive polarity with a voltage ranging from V1 to V7, and odd outputs are of negative polarity with a voltage ranging from V8 to V14. On the other hand, if LD has low level "POL", even outputs are of negative polarity and odd outputs are of positive. POL=1: Even outputs range from V1~V7, and Odd outputs range from V8~V14 POL=0: Even outputs range from V8~V14, and Odd outputs range from V1~V7												

REV	I	Controls whether the data of D00~D25 are inverted or not, default = L. When "REV" = 1 these data will be inverted. EX."00" → " 3F", "07" → " 38", "15" → "2A", and so on.	
CS[1:0]	I	Charge Sharing function adjustment. Default = "01".	
		CS[1:0]	Description
		00	Disable charge sharing function.
		01	Enable charge sharing when LD=H and even POL is not changed. (Default)
		10	Enable charge sharing when LD=H and POL changes.
11	Enable charge sharing starting from LD <b>rising</b> when POL changes and the duration is 128 clock cycles.		
ENREOP	I	ENREOP = H : Enable repair line OP RPI1/2 , RPO1/2. ENREOP = L or open : Disable repair line OP RPI1/2 , RPO1/2. Default = L.	
TTLRSDS	I	TTL and RSDS input mode selection. Default = L. Please refer to Note1 for more detail setting.	
MILVDS	I	MINILVDS input mode selection. Default = L(MINI-LVDS input mode disable). Please refer to Note1 for more detail setting.	
SWB	I	Only for Mini-LVDS mode. Changing the data order of Mini-LVDS mode. Please refer to Note2 for detail setting. Default = L.	
CHNSL[2:0]	I	Output channel selection. Please refer to Note3 for more detail setting. Default = "101" or "HLH".	
OP[1:0]	I	Source driving ability adjustment. Default = "00".	
		OP[1:0]	Source driving ability
		00	100%
		01	150%
		10	200%
11	50%		
V1 ~ V14	I	Gamma correction reference voltage. The voltage of these pins must be AVSS<V14<V13<V12<V11<V10<V9<V8; V7<V6<V5<V4<V3<V2<V1<AVDD	
TP[1:0]	I	Novatek test pin. <b>Floating these pins for normal operation.</b>	
<b>Power</b>			
AVDD	PI	Power supply for analog circuits	
AVSS	PI	Ground pins for analog circuits	
VDD	PI	Power supply for digital circuits	
GND	PI	Ground pins for digital circuits	
<b>Others</b>			
OUT1 ~OUT1200	O	Output driver signals.	
RPO1,RPO2	O	RPI1 (RPI2) → impedance changed → RPO1 (RPO2)	
SHIELDING	S	This pad is connected to internal ground. Not connected.	
DUM	D	Dummy pad. Not connected.	

**I: Input, O: Output, D: Dummy, PI: Power input, I/O: Input / Output.**

**Pass line name:**

PASS LINE NO.	PIN NAME	
1	COM1_B	COM1_T
2	COM2_B	COM2_T

**Note: The application voltage range of these pins is AVDD~AVSS.**

**Note1 : Pin name mapping table.**

Pin name	RSDS mode	TTL mode	Mini-LVDS 6 pair input mode	Mini-LVDS 3 pair input mode
	TTLRSDS = H MILVDS = L	TTLRSDS = L MILVDS = L	TTLRSDS = L MILVDS = H	TTLRSDS = H MILVDS = H
CLK	CLKP	CLK	D00P	D00P
CLKN	CLKN	GND	D00N	D00N
D00	D00N	D00	D01P	D01P
D01	D00P	D01	D01N	D01N
D02	D01N	D02	D02P	D02P
D03	D01P	D03	D02N	D02N
D04	D02N	D04	CLKP	CLKP
D05	D02P	D05	CLKN	CLKN
D10	D10N	D10	D03P	GND
D11	D10P	D11	D03N	GND
D12	D11N	D12	D04P	GND
D13	D11P	D13	D04N	GND
D14	D12N	D14	D05P	GND
D15	D12P	D15	D05N	GND
D20	D20N	D20	GND	GND
D21	D20P	D21	GND	GND
D22	D21N	D22	GND	GND
D23	D21P	D23	GND	GND
D24	D22N	D24	GND	GND
D25	D22P	D25	GND	GND

**Note2 : Mini-LVDS with SWB function pin name mapping table.**

Pin name	Mini-LVDS 6 pair input mode	Mini-LVDS 6 pair input mode	Mini-LVDS 3 pair input mode	Mini-LVDS 3 pair input mode
	TTLRSDS = L MILVDS = H SWB = L	TTLRSDS = L MILVDS = H SWB = H	TTLRSDS = H MILVDS = H SWB = L	TTLRSDS = H MILVDS = H SWB = H
CLK	D00P	D05N	D00P	GND
CLKN	D00N	D05P	D00N	GND
D00	D01P	D04N	D01P	GND
D01	D01N	D04P	D01N	GND
D02	D02P	D03N	D02P	GND
D03	D02N	D03P	D02N	GND
D04	CLKP	CLKN	CLKP	CLKN
D05	CLKN	CLKP	CLKN	CLKP
D10	D03P	D02N	GND	D02N
D11	D03N	D02P	GND	D02P
D12	D04P	D01N	GND	D01N
D13	D04N	D01P	GND	D01P
D14	D05P	D00N	GND	D00N
D15	D05N	D00P	GND	D00P
D20	GND	GND	GND	GND
D21	GND	GND	GND	GND
D22	GND	GND	GND	GND
D23	GND	GND	GND	GND
D24	GND	GND	GND	GND
D25	GND	GND	GND	GND

**Note3 : Output channel selection table.**

CHNSL2	CHNSL1	CHNSL0	Output channel	Disable channel
H	H	H	960	OUT481 ~ OUT720
H	H	L	1080	OUT541 ~ OUT660
H	L	H	1200	none
L	L	H	1026	OUT514 ~ OUT687
L	H	H	1020	OUT514 ~ OUT687, OUT1195 ~ OUT1200

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## Function Description

### 1. Power on/off sequence

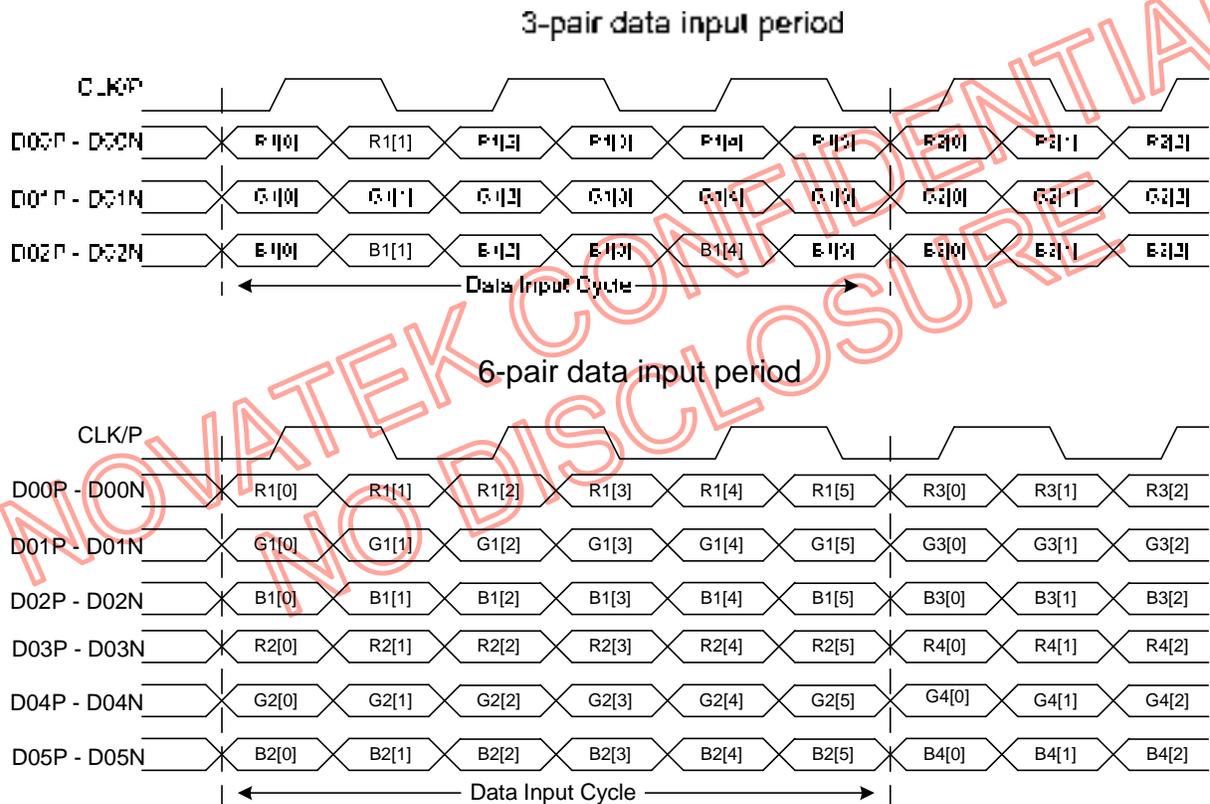
This IC is a high-voltage LCD driver, so may be damaged by a large current flow when an incorrect power sequence is used. The recommended sequence should be: digital power (VDD&GND) ( logic signals(analog power (AVDD&AVSS) (Gamma correction reference voltage(V1~V14). Reverse this sequence to shut down, or turn off all signals and power simultaneously.

### 2. RSDS Receiver and Demultiplexer

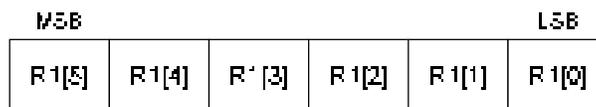
The device adapts the RSDS interface for EMI solution. The internal RSDS receiver block operates the comparison between the transmitted differential input pair data. The input data line from the timing controller to the RSDS receiver consist of 6-bit digital, 3 color, 1 port, 9 differential data pair (DxxP/DxxN) and 1 differential clock pair(CLKP/CLKN). The input common mode voltage range at the RSDS receiver is 1.2V. The differential data and clock signals from the panel timing controller arrive at the NT51007D as multi-plexed, even and odd data fields. The nominal peak to peak swing of the data is 200mV across a termination resistor.

### 3. MINI-LVDS Data Mapping and Cascade

#### (1) Data Mapping



#### (2) Composition of display data



#### (3) Cascade

Multiple chips can be used in a cascade connection.

- Input DIO Pad at lead(head) chip is fixed "H".
- Input DIO after 2<sup>nd</sup> chips are connected from output DIO at foregoing chip.

#### 4. Relationship between the order of input data and output channels

(1) SHL="1", shift right, a start pulse from DIO1. TTL and RSDS mode.

<b>Output</b>	OUT1	OUT2	OUT3	---	OUT1198	OUT1199	OUT1200
<b>Order</b>	First data			---→	Last data		
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	---	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

(2) SHL="0", shift left, a start pulse from DIO2. TTL and RSDS mode.

<b>Output</b>	OUT1198	OUT1199	OUT1200	---	OUT1	OUT2	OUT3
<b>Order</b>	First data			←---	Last data		
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	---	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

(3) SHL="1", shift right, a start pulse from DIO1. Mini-LVDS 3 pair mode.

<b>Output</b>	OUT1	OUT2	OUT3	---	OUT1198	OUT1199	OUT1200
<b>Order</b>	First data			---→	Last data		
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	---	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

(4) SHL="0", shift left, a start pulse from DIO2. Mini-LVDS 3 pair mode.

<b>Output</b>	OUT1198	OUT1199	OUT1200	---	OUT1	OUT2	OUT3
<b>Order</b>	First data			←---	Last data		
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	---	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

(5) SHL="1", shift right, a start pulse from DIO1. Mini-LVDS 6 pair mode

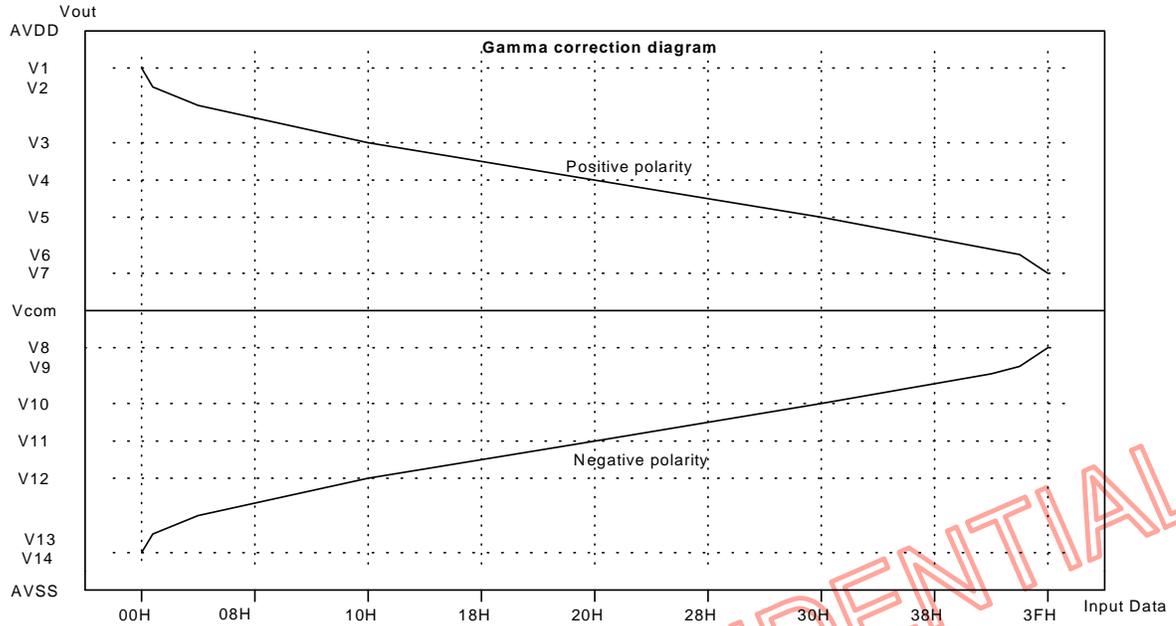
<b>Output</b>	OUT1	OUT2	OUT3	OUT4	OUT5	OUT6	---	OUT1195	OUT1196	OUT1197	OUT1198	OUT1199	OUT1200
<b>Order</b>	First data						---→	Last data					
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	R2[0]~ R2[5]	G2[0]~ G2[5]	B2[0]~ B2[5]	---	R399[0]~ R399[5]	G399[0]~ G399[5]	B399[0]~ B399[5]	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

(6) SHL="0", shift left, a start pulse from DIO2. Mini-LVDS 6 pair mode

<b>Output</b>	OUT1198	OUT1199	OUT1200	OUT1195	OUT1196	OUT1197	---	OUT4	OUT5	OUT6	OUT1	OUT2	OUT3
<b>Order</b>	First data						---→	Last data					
<b>Data</b>	R1[0]~ R1[5]	G1[0]~ G1[5]	B1[0]~ B1[5]	R2[0]~ R2[5]	G2[0]~ G2[5]	B2[0]~ B2[5]	---	R399[0]~ R399[5]	G399[0]~ G399[5]	B399[0]~ B399[5]	R400[0]~ R400[5]	G400[0]~ G400[5]	B400[0]~ B400[5]

## 5. Relationship between input data and output voltage

The figure below shows the relationship between the input data and the output voltage with the polarity. The range of V1~ V7 is for positive polarity, and V8 ~ V14 for negative polarity. Please refer to the following page to get the relative resistor value and voltage calculation method.



Remark:  $AVDD-0.1 \geq V1 \geq V2 \geq V3 \geq V4 \geq V5 \geq V6 \geq V7$ ;  $V8 \geq V9 \geq V10 \geq V11 \geq V12 \geq V13 \geq V14 \geq AVSS+0.1V$

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**6. Gamma correction resistor ratio**

	Name	Resistor	Name	Resistor	
V1, V14 →	R0	828	R32	90.9	← V4, V11
V2, V13 →	R1	711	R33	90.9	
	R2	621	R34	90.9	
	R3	540	R35	90.9	
	R4	477	R36	90.9	
	R5	427.5	R37	90.9	
	R6	382.5	R38	90.9	
	R7	344.7	R39	90.9	
	R8	313.2	R40	90	
	R9	288	R41	90.9	
	R10	259.2	R42	91.8	
	R11	243	R43	91.8	
	R12	220.5	R44	92.7	
	R13	203.4	R45	94.5	
	R14	193.5	R46	95.4	
	R15	177.3	R47	97.2	
V3, V12 →	R16	166.5	R48	99	← V5, V10
	R17	154.8	R49	102.6	
	R18	144	R50	107.1	
	R19	135	R51	112.5	
	R20	130.5	R52	117.9	
	R21	121.5	R53	124.2	
	R22	117	R54	131.4	
	R23	114.3	R55	141.3	
	R24	109.8	R56	153.9	
	R25	108	R57	166.5	
	R26	102.6	R58	190.8	
	R27	99	R59	230.4	
	R28	95.4	R60	304.2	
	R29	94.5	R61	468	← V6, V9
	R30	94.5	R62	3168	← V7, V8
V4, V11 →	R31	92.7			

**7. Output Voltage VS Input Data**

Data	Positive polarity Output Voltage	Negative polarity Output Voltage
00H	V1	V14
01H	V2	V13
02H	V3 + (V2 - V3) X 4690.8 / 5401.8	V13 + (V12 - V13) X 711 / 5401.8
03H	V3 + (V2 - V3) X 4069.8 / 5401.8	V13 + (V12 - V13) X 1332 / 5401.8
04H	V3 + (V2 - V3) X 3529.8 / 5401.8	V13 + (V12 - V13) X 1872 / 5401.8
05H	V3 + (V2 - V3) X 3052.8 / 5401.8	V13 + (V12 - V13) X 2349 / 5401.8
06H	V3 + (V2 - V3) X 2625.3 / 5401.8	V13 + (V12 - V13) X 2776.5 / 5401.8
07H	V3 + (V2 - V3) X 2242.8 / 5401.8	V13 + (V12 - V13) X 3159 / 5401.8
08H	V3 + (V2 - V3) X 1898.1 / 5401.8	V13 + (V12 - V13) X 3503.7 / 5401.8
09H	V3 + (V2 - V3) X 1584.9 / 5401.8	V13 + (V12 - V13) X 3816.9 / 5401.8
0AH	V3 + (V2 - V3) X 1296.9 / 5401.8	V13 + (V12 - V13) X 4104.9 / 5401.8
0BH	V3 + (V2 - V3) X 1037.7 / 5401.8	V13 + (V12 - V13) X 4364.1 / 5401.8
0CH	V3 + (V2 - V3) X 794.7 / 5401.8	V13 + (V12 - V13) X 4607.1 / 5401.8
0DH	V3 + (V2 - V3) X 574.2 / 5401.8	V13 + (V12 - V13) X 4827.6 / 5401.8
0EH	V3 + (V2 - V3) X 370.8 / 5401.8	V13 + (V12 - V13) X 5031 / 5401.8
0FH	V3 + (V2 - V3) X 177.3 / 5401.8	V13 + (V12 - V13) X 5224.5 / 5401.8
10H	V3	V12
11H	V4 + (V3 - V4) X 1713.6 / 1880.1	V12 + (V11 - V12) X 166.5 / 1880.1
12H	V4 + (V3 - V4) X 1558.8 / 1880.1	V12 + (V11 - V12) X 321.3 / 1880.1
13H	V4 + (V3 - V4) X 1414.8 / 1880.1	V12 + (V11 - V12) X 465.3 / 1880.1
14H	V4 + (V3 - V4) X 1279.8 / 1880.1	V12 + (V11 - V12) X 600.3 / 1880.1
15H	V4 + (V3 - V4) X 1149.3 / 1880.1	V12 + (V11 - V12) X 730.8 / 1880.1
16H	V4 + (V3 - V4) X 1027.8 / 1880.1	V12 + (V11 - V12) X 852.3 / 1880.1
17H	V4 + (V3 - V4) X 910.8 / 1880.1	V12 + (V11 - V12) X 969.3 / 1880.1
18H	V4 + (V3 - V4) X 796.5 / 1880.1	V12 + (V11 - V12) X 1083.6 / 1880.1
19H	V4 + (V3 - V4) X 686.7 / 1880.1	V12 + (V11 - V12) X 1193.4 / 1880.1
1AH	V4 + (V3 - V4) X 578.7 / 1880.1	V12 + (V11 - V12) X 1301.4 / 1880.1
1BH	V4 + (V3 - V4) X 476.1 / 1880.1	V12 + (V11 - V12) X 1404 / 1880.1
1CH	V4 + (V3 - V4) X 377.1 / 1880.1	V12 + (V11 - V12) X 1503 / 1880.1
1DH	V4 + (V3 - V4) X 281.7 / 1880.1	V12 + (V11 - V12) X 1598.4 / 1880.1
1EH	V4 + (V3 - V4) X 187.2 / 1880.1	V12 + (V11 - V12) X 1692.9 / 1880.1
1FH	V4 + (V3 - V4) X 92.7 / 1880.1	V12 + (V11 - V12) X 1787.4 / 1880.1
20H	V4	V11
21H	V5 + (V4 - V5) X 1380.6 / 1471.5	V11 + (V10 - V11) X 90.9 / 1471.5
22H	V5 + (V4 - V5) X 1289.7 / 1471.5	V11 + (V10 - V11) X 181.8 / 1471.5
23H	V5 + (V4 - V5) X 1198.8 / 1471.5	V11 + (V10 - V11) X 272.7 / 1471.5
24H	V5 + (V4 - V5) X 1107.9 / 1471.5	V11 + (V10 - V11) X 363.6 / 1471.5
25H	V5 + (V4 - V5) X 1017 / 1471.5	V11 + (V10 - V11) X 454.5 / 1471.5
26H	V5 + (V4 - V5) X 926.1 / 1471.5	V11 + (V10 - V11) X 545.4 / 1471.5
27H	V5 + (V4 - V5) X 835.2 / 1471.5	V11 + (V10 - V11) X 636.3 / 1471.5
28H	V5 + (V4 - V5) X 744.3 / 1471.5	V11 + (V10 - V11) X 727.2 / 1471.5
29H	V5 + (V4 - V5) X 654.3 / 1471.5	V11 + (V10 - V11) X 817.2 / 1471.5
2AH	V5 + (V4 - V5) X 563.4 / 1471.5	V11 + (V10 - V11) X 908.1 / 1471.5
2BH	V5 + (V4 - V5) X 471.6 / 1471.5	V11 + (V10 - V11) X 999 / 1471.5
2CH	V5 + (V4 - V5) X 379.8 / 1471.5	V11 + (V10 - V11) X 1091.7 / 1471.5
2DH	V5 + (V4 - V5) X 287.1 / 1471.5	V11 + (V10 - V11) X 1184.4 / 1471.5
2EH	V5 + (V4 - V5) X 192.6 / 1471.5	V11 + (V10 - V11) X 1278.9 / 1471.5
2FH	V5 + (V4 - V5) X 97.2 / 1471.5	V11 + (V10 - V11) X 1374.3 / 1471.5
30H	V5	V10
31H	V6 + (V5 - V6) X 2350.8 / 2449.8	V10 + (V9 - V10) X 99 / 2449.8
32H	V6 + (V5 - V6) X 2248.2 / 2449.8	V10 + (V9 - V10) X 201.6 / 2449.8
33H	V6 + (V5 - V6) X 2141.1 / 2449.8	V10 + (V9 - V10) X 308.7 / 2449.8
34H	V6 + (V5 - V6) X 2028.6 / 2449.8	V10 + (V9 - V10) X 421.2 / 2449.8
35H	V6 + (V5 - V6) X 1910.7 / 2449.8	V10 + (V9 - V10) X 539.1 / 2449.8
36H	V6 + (V5 - V6) X 1786.5 / 2449.8	V10 + (V9 - V10) X 663.3 / 2449.8
37H	V6 + (V5 - V6) X 1655.1 / 2449.8	V10 + (V9 - V10) X 794.7 / 2449.8
38H	V6 + (V5 - V6) X 1513.8 / 2449.8	V10 + (V9 - V10) X 936 / 2449.8
39H	V6 + (V5 - V6) X 1359.9 / 2449.8	V10 + (V9 - V10) X 1089.9 / 2449.8
3AH	V6 + (V5 - V6) X 1193.4 / 2449.8	V10 + (V9 - V10) X 1256.4 / 2449.8
3BH	V6 + (V5 - V6) X 1002.6 / 2449.8	V10 + (V9 - V10) X 1447.2 / 2449.8
3CH	V6 + (V5 - V6) X 772.2 / 2449.8	V10 + (V9 - V10) X 1677.6 / 2449.8
3DH	V6 + (V5 - V6) X 468 / 2449.8	V10 + (V9 - V10) X 1981.8 / 2449.8
3EH	V6	V9
3FH	V7	V8

**Absolute Maximum Ratings**

Parameter	MIN.	MAX.	UNIT
Logic supply voltage, VDD Digital input voltage	-0.5	5	V
Analog supply voltage, AVDD Gamma voltage, V1~V14	-0.5	15	V

**TEMPREATURE**

Parameter	MIN.	MAX.	UNIT
Operating temperature	-20	+85	°C
Storage temperature	-55	+125	°C

**Comment :**

Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of this device at these or under any other conditions above those indicated in the operational sections of this specification are not implied and exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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## DC Electrical Characteristics

For the digital circuit:

(TTL mode: VDD = 2.3V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)

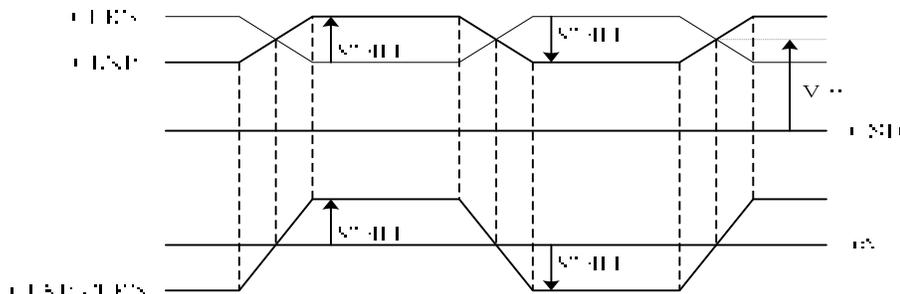
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	VDD	2.3	3.3	3.6	V	Digital power for TTL mode
Low Level Input Voltage	Vil	0	-	0.3xVDD	V	For the digital circuit
High Level Input Voltage	Vih	0.7xVDD	-	VDD	V	For the digital circuit
High Level Output Voltage	Voh	VDD-0.4	-	-	V	DIO1, DIO2, loh=1mA
Low Level Output Voltage	Vol	GND	-	GND+0.4	V	DIO1, DIO2, lol=-1mA
Input Leakage Current	li	-	-	±1	uA	For the digital circuit
Digital Stand-by Current	Ist	-	-	50	uA	DCLK is stopped, Inputs are default, Outputs are High-Z. VDD=3.3V
Digital Operating Current	Icc	-	-	8	mA	Fclk=50MHz, FLD=50KHz, VDD=3.3V, Input pattern: 15h->2Ah->15h->2Ah
Pull low resistor	Ri	75K	300K	450K	ohm	VDD=3.3V, TA=+25°C
Pull high resistor	Ri	200K	300K	600K	ohm	VDD=3.3V, TA=+25°C

(RSDS mode: VDD = 2.3V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	VDD	2.3	3.3	3.6	V	Digital power
RSDS Low Level Input Voltage	Vilrsds	-	-200	-100	mV	D2[2:0]P,D2[2:0]N,CLKP,CLKN
RSDS High Level Input Voltage	Vihrsds	100	200	-	mV	D2[2:0]P,D2[2:0]N,CLKP,CLKN
RSDS reference Voltage	Vcmrsds	GND+0.1	1.2	VDD-1.2	V	D2[2:0]P,D2[2:0]N,CLKP,CLKN
Low Level Input Voltage	Vil	0	-	0.3xVDD	V	Other input pins
High Level Input Voltage	Vih	0.7xVDD	-	VDD	V	Other input pins
High Level Output Voltage	Voh	VDD-0.4	-	-	V	DIO1, DIO2, loh=1mA
Low Level Output Voltage	Vol	GND	-	GND+0.4	V	DIO1, DIO2, lol=-1mA
RSDS input Leakage Current	Iirrsds	-	-	10	uA	D2[2:0]P,D2[2:0]N,CLKP,CLKN
Input Leakage Current	li	-	-	±1	uA	Other input pins
RSDS Digital Operating Current	Iccrsds	-	-	10	mA	Fclk=80MHz, FLD=60KHz, VDD=3.3V, Input pattern: 15h->2Ah->15h->2Ah

Notes:

1.  $VCMRSDS=(VCLKP+VCLKN)/2$  OR  $VCMRSDS=(VDxxP+VDxxN)/2$
2.  $VDIFFRSDS=VCLKP-VCLKN$  or  $VDIFFRSDS=VDxxP-VDxxN$



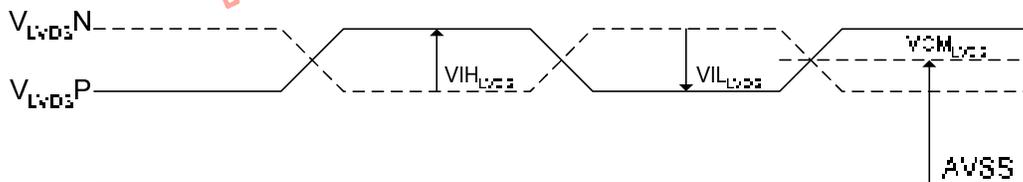
(Mini-LVDS mode: VDD = 2.4V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)

Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
Mini-LVDS High Input Voltage	$V_{IH_{LVDS}}$	200	300	-	mV	$V_{CM_{LVDS}} = +1.2V$
Mini-LVDS Low Input Voltage	$V_{IL_{LVDS}}$	-	-300	-200	mV	
Mini-LVDS Common Mode CS Input Voltage Range	$V_{CM_{LVDS}}^{(1)}$	0.9	1.2	1.5	V	VDD = 3.0V to 3.6V $V_{DIFF_{LVDS}} = 300mV$
		0.5	0.8	1.1	V	VDD = 2.4V to 3.0V $V_{DIFF_{LVDS}} = 300mV$
Mini-LVDS input Leakage Current	IDL	-1	-	1	uA	D00~D05, D10~D15 CLK/N
Mini-LVDS Digital Operating Current	$I_{cc_{LVDS}}$	-	-	20	mA	3 pair mode Fclk=240MHz, FLD=60KHz, VDD=3.3V, Input pattern: 15h->2Ah->15h->2Ah
		-	-	15		6 pair mode Fclk=120MHz, FLD=60KHz, VDD=3.3V, Input pattern: 15h->2Ah->15h->2Ah

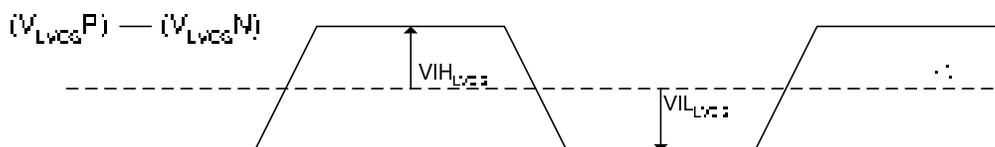
Notes:

- $V_{CM_{LVDS}} = (V_{CLKP} + V_{CLKN}) / 2$  or  $V_{CM_{LVDS}} = (V_{LVDS_P} + V_{LVDS_N}) / 2$
- $V_{DIFF_{LVDS}} = V_{CLKP} - V_{CLKN}$  or  $V_{DIFF_{LVDS}} = V_{LVDS_P} - V_{LVDS_N}$

### Single END



### Differential Signal



**For the analog circuit:**
**(VDD = 2.3V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Voltage	AVDD	6.5	10	13.5	V	For the analog circuit power
Input level of V1 ~ V7	Vref	0.4AVDD	-	AVDD-0.1	V	Gamma correction voltage
Input level of V8 ~ V14	Vref	0.1	-	0.6AVDD	V	Gamma correction voltage
Output Voltage deviation	Vod	-	±10	±20	mV	Vo=1.5V~12.0V, AVDD=13.5V
		-	±20	±40	mV	Vo=0.1V~1.5V, Vo=12.0V~13.4V AVDD=13.5V
Voltage Output Offset between Chips	Voc	-	-	±20	mV	
Dynamic Range of Output	Vdr	0.1	-	AVDD-0.1	V	OUT1 ~ OUT1200
Sinking Current of Outputs	IOLy	80	-	-	uA	OUT1 ~ OUT1200; Vo=0.1V v.s 1.0V, AVDD=13.5V
	IOLr	400				RPO1,RPO2; Vo=0.1V v.s 1.0V, AVDD=13.5V
Driving Current of Outputs	IOHy	80	-	-	uA	OUT1 ~ OUT1200; Vo=13.4V v.s 12.5V, AVDD=13.5V
	IOHr	400				RPO1,RPO2; Vo=13.4V v.s 12.5V, AVDD=13.5V
Impedance of Gamma Correction	Rg	0.7*Rn	Rn	1.3*Rn	ohm	Rn: Internal gamma resistor
Analog Stand-by Current	Isc	-	8.5	10	mA	No load, AVDD=10V, and all operating is stopped.
Analog Operating Current	Ioc	-	-	30	mA	No load, Mini-LVDS 3pair mode Fclk=240MHz, FLD=60KHz, AVDD=13.5V, V1=13V, V14=0.5V, Input pattern: 00h->3Fh->00h->3Fh

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## AC Electrical Characteristics

(TTL mode: VDD = 2.3V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
CLK frequency	Fclk	-	50	55	MHz	EDGSL = '0'
	Fclk	-	25	27.5	MHz	EDGSL = '1'
CLK pulse width	Tcw	40%	-	60%	Tcph	
Data set-up time	Tsu	3	-	-	ns	D00 ~ D25, REV and DIO1/2 to CLK
Data hold time	Thd	4	-	-	ns	D00 ~ D25, REV and DIO1/2 to CLK
Propagation delay of DIO2/1	Tphl	6	10	15	ns	CL=25pF ( Output )
Time that the last data to LD	Tld	7	-	-	Tcph	
Pulse width of LD	Twld	2	-	-	Tcph	
Pulse width of DIO	DPW	-	1	-	Tcph	
Time that LD to DIO1/2	Tlds	5	-	-	Tcph	
POL set-up time	Tpsu	6	-	-	ns	POL to LD
POL hold time	Tphd	6	-	-	ns	POL to LD
Output stable time	Tst	-	-	9	us	10% or 90% target voltage. CL=40pF, R=5Kohm
Repair output delay stable time	Tst1	-	-	20	us	CL=190pF, R=5.5Kohm

(RSDS mode: VDD = 2.3V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
CLK frequency	Fclk	-	65	90	MHz	
CLK pulse width	Tcw	40%	-	60%	Tcph	
Data set-up time	Tsu	2	-	-	ns	D00 ~ D25, REV and DIO1/2 to CLK
Data hold time	Thd	3	-	-	ns	D00 ~ D25, REV and DIO1/2 to CLK
Propagation delay of DIO2/1	Tphl	6	10	15	ns	CL=25pF ( Output )
Time that the last data to LD	Tld	7	-	-	Tcph	
Pulse width of LD	Twld	2	-	-	Tcph	
Pulse width of DIO	DPW	-	1	-	Tcph	
Time that LD to DIO1/2	Tlds	5	-	-	Tcph	
POL set-up time	Tpsu	6	-	-	ns	POL to LD
POL hold time	Tphd	6	-	-	ns	POL to LD
Output stable time	Tst	-	-	9	us	10% or 90% target voltage. CL=40pF, R=5Kohm
Repair output delay stable time	Tst1	-	-	20	us	CL=190pF, R=5.5Kohm

**(Mini-LVDS mode: VDD = 2.4V to 3.6V, AVDD = 6.5V to 13.5V, AVSS=GND=0V, TA= -20 to +85°C)**

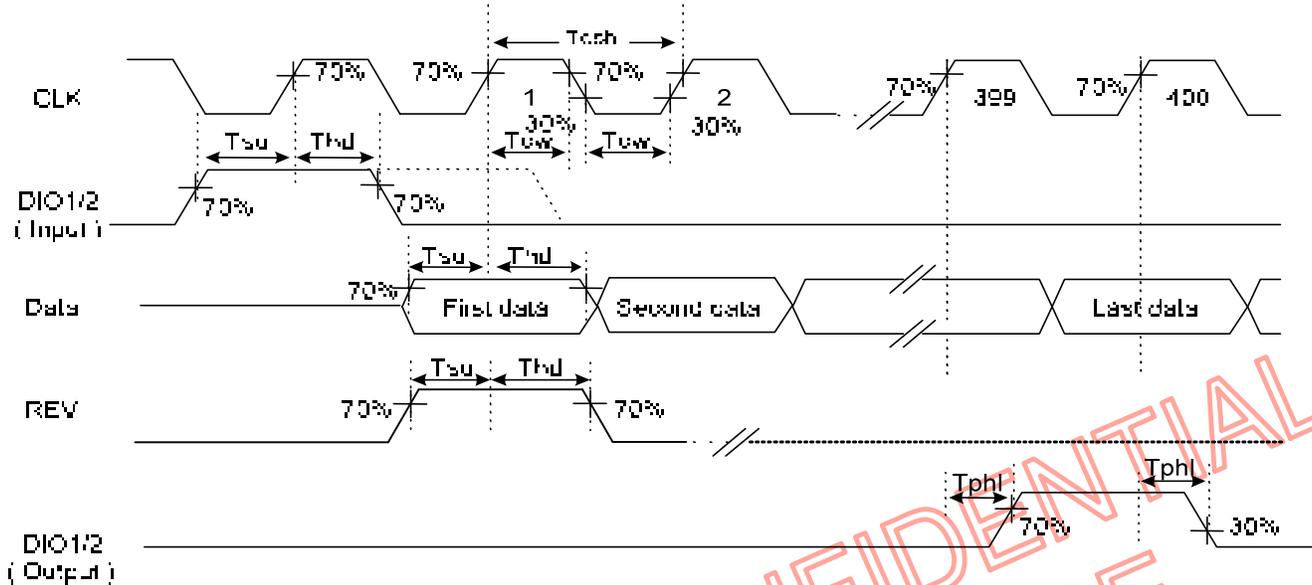
Parameter	Symbol	Min	Typ.	Max	Unit	Conditions
CLK Pulse Width	PWCLK	3.71	-	-	ns	3 pair mode (F <sub>CLK</sub> ≤ 270MHz.)
		5.56	-	-		6 pair mode (F <sub>CLK</sub> ≤ 180MHz.)
CLK Pulse Low Period	PWCLK(L)	0.4	-	0.6	CLK	
CLK Pulse High Period	PWCLK(H)	0.4	-	0.6	CLK	
Data Setup Time	Tsetup1	0.8	-	-	ns	3 pair mode
		1.0	-	-		6 pair mode
Data Hold Time	Thold1	0.8	-	-	ns	3 pair mode
		1.0	-	-		6 pair mode
DIO SETUP Time	Tsetup2	0	-	-	ns	
DIO Signal Delay Time	Tplh	-	-	5	CLK	Load=25pF, 3 pair / 6 pair mode
DIO Pulse Width	Twd	-	-	48	CLK	3 pair mode
		-	-	24		6 pair mode
CLK, D00~D05, D10~D15 Rising Time	Tthl	-	-	0.9	ns	3 pair mode
		-	-	1.1		6 pair mode
CLK, D00~D05, D10~D15 Falling Time	Ttth	-	-	0.9	ns	3 pair mode
		-	-	1.1		6 pair mode
Reset(RST) High Period	Thp-rst	3	-	-	CLK	Also more than 50ns
Receive Off to LD Timing	Tro-ld	21	-	-	CLK	
LD High Pulse Width	PWLD	21	-	-	CLK	
POL Setup Time	Tsetup3	14	-	-	ns	
POL Hold Time	Thold3	10	-	-	ns	
LD to Reset Input Time	Tld-rst	21	-	-	CLK	Also more than 200ns
Reset Low to LD Rising Time	Trst-ld	0	-	-	ns	
RST Setup Time	Tsetup4	0.8	-	-	ns	3 pair mode
		1.0	-	-		6 pair mode
RST Hold Time	Thold4	0.8	-	-	ns	3 pair mode
		1.0	-	-		6 pair mode

## Timing Diagram

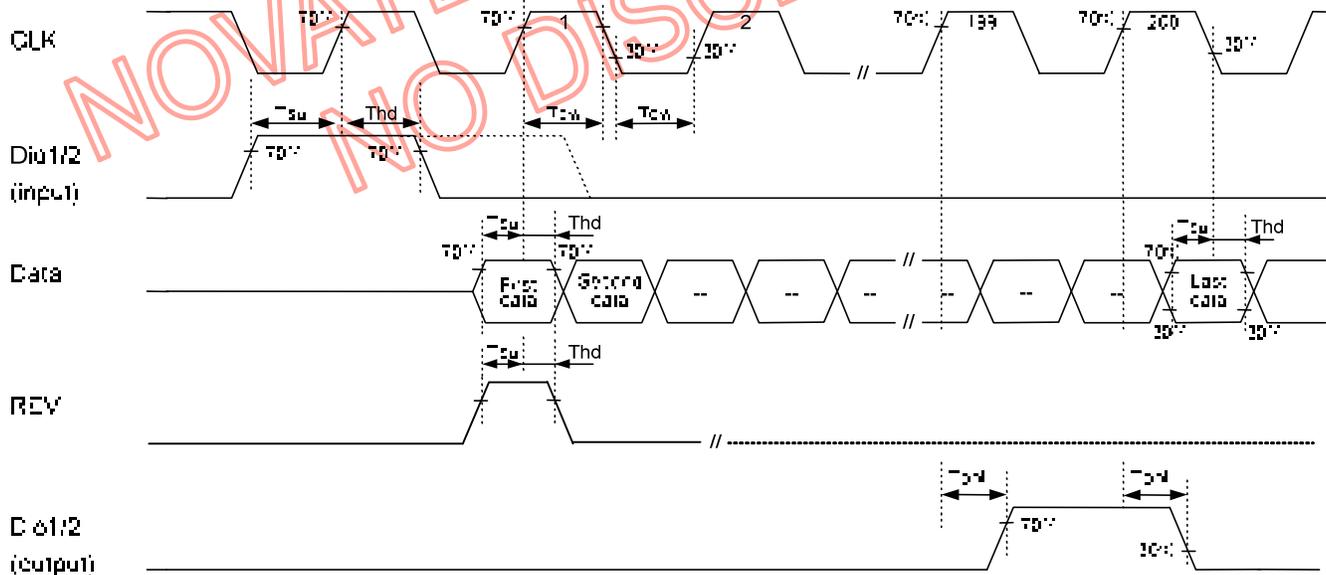
### 1. Clock and data input timing diagram 1

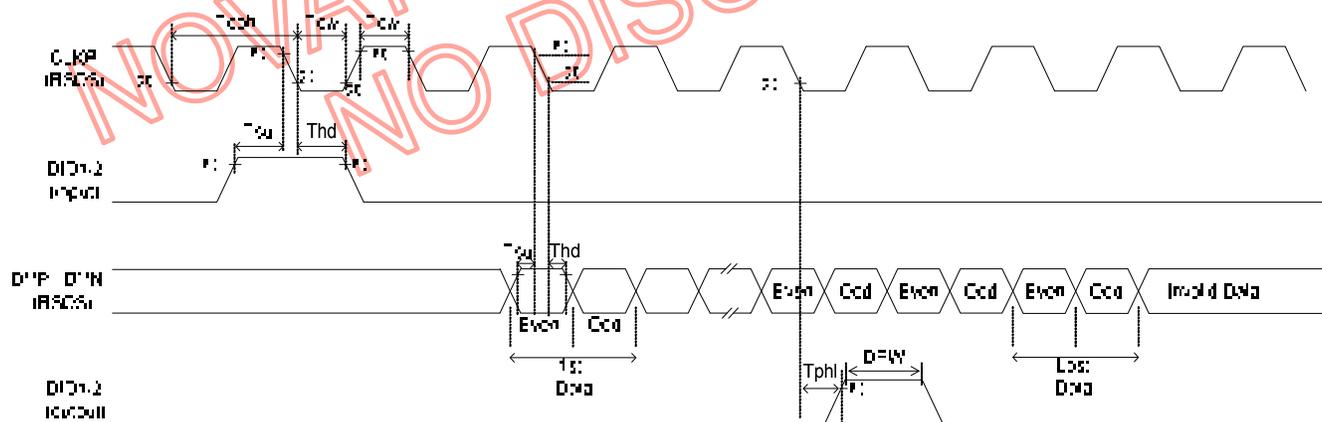
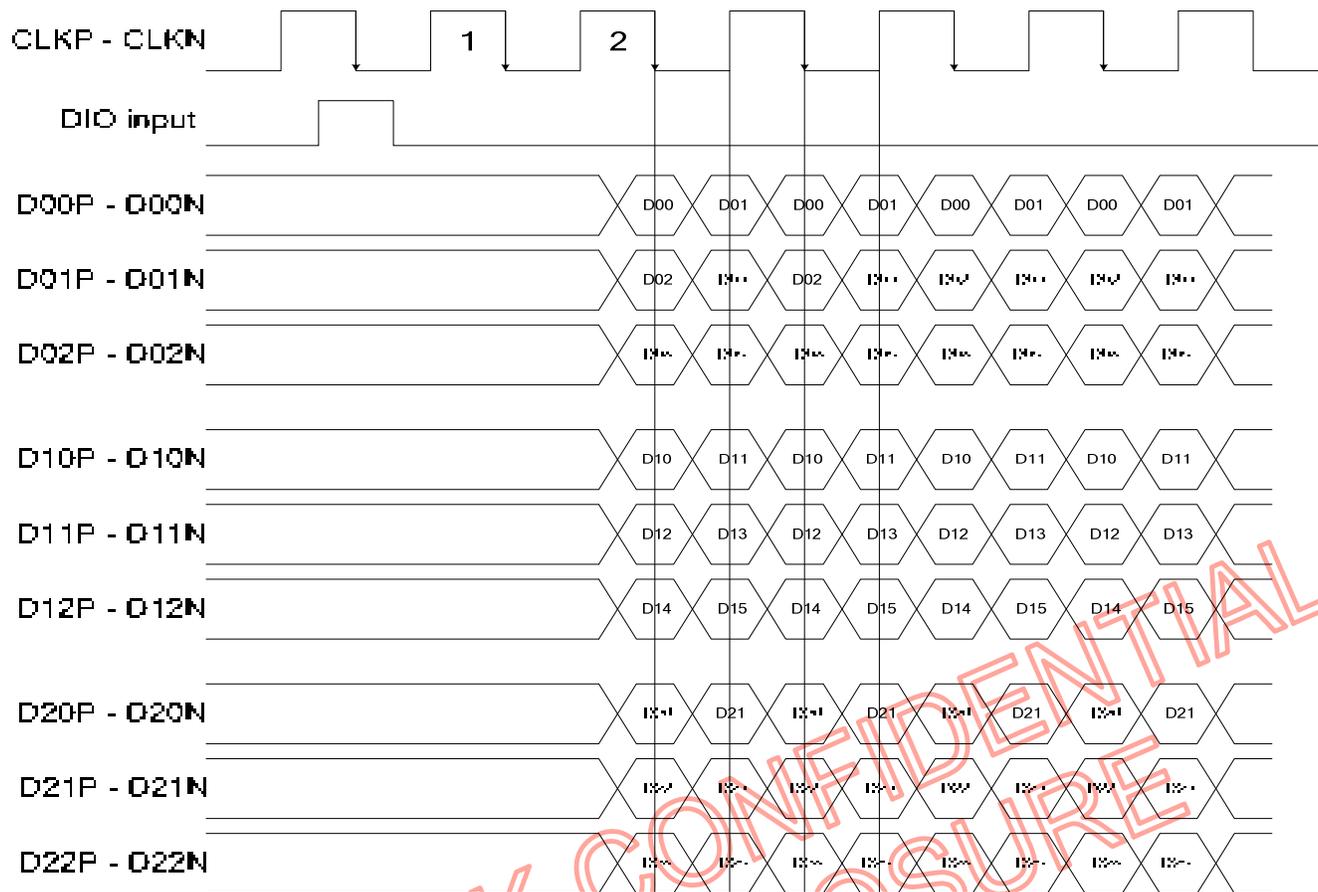
#### 1.1 TTL mode

<< EDGSL= "0", Default >>

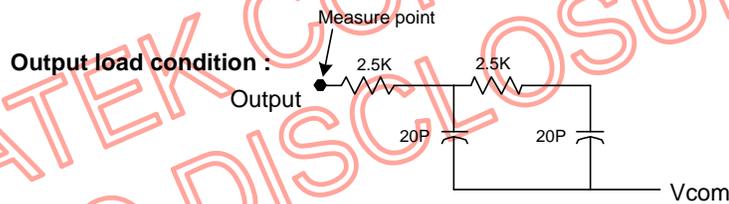
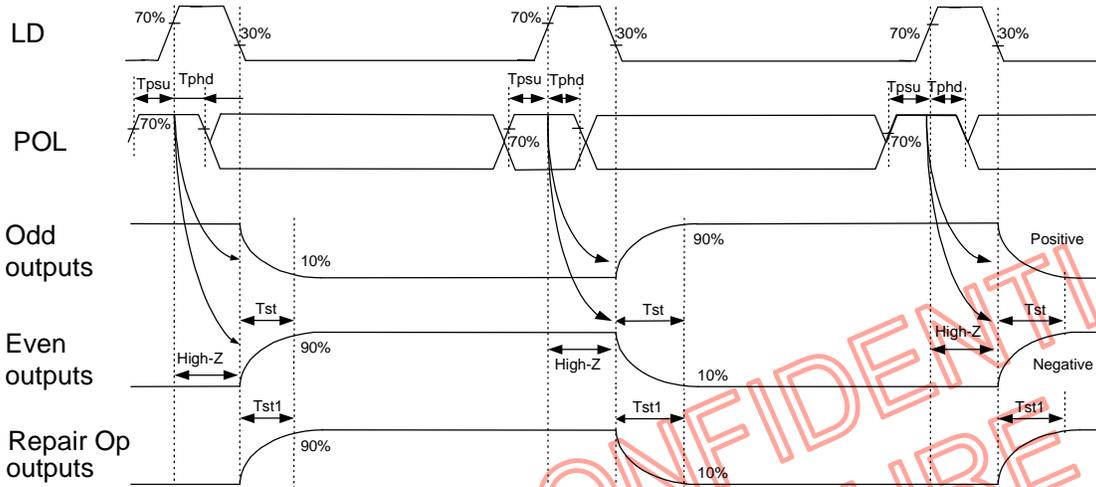
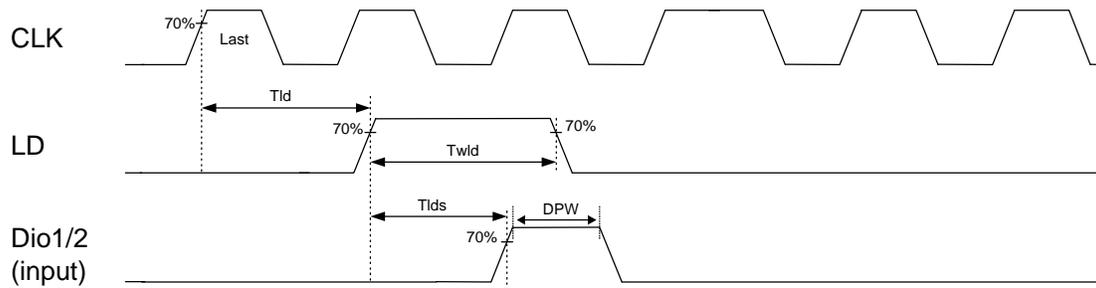


<< EDGSL= "1">>



**1.2 RSDS mode**


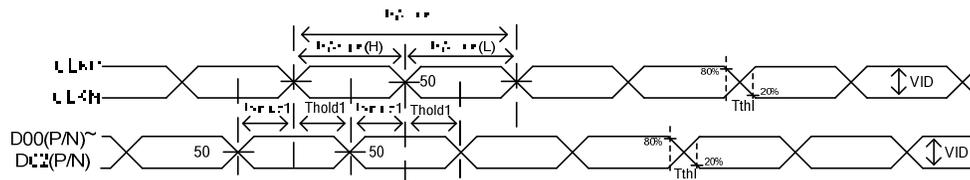
## 2. Clock and data input timing diagram 2



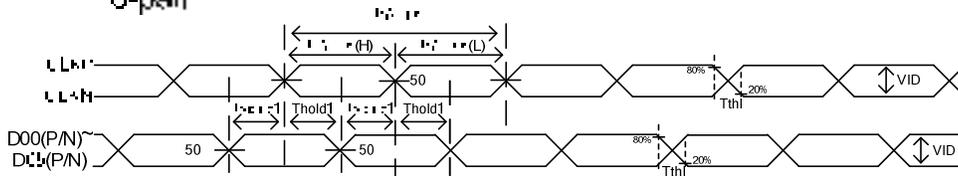
## 3. Mini-LVDS Timing

### 3.1 Timing for receiving data

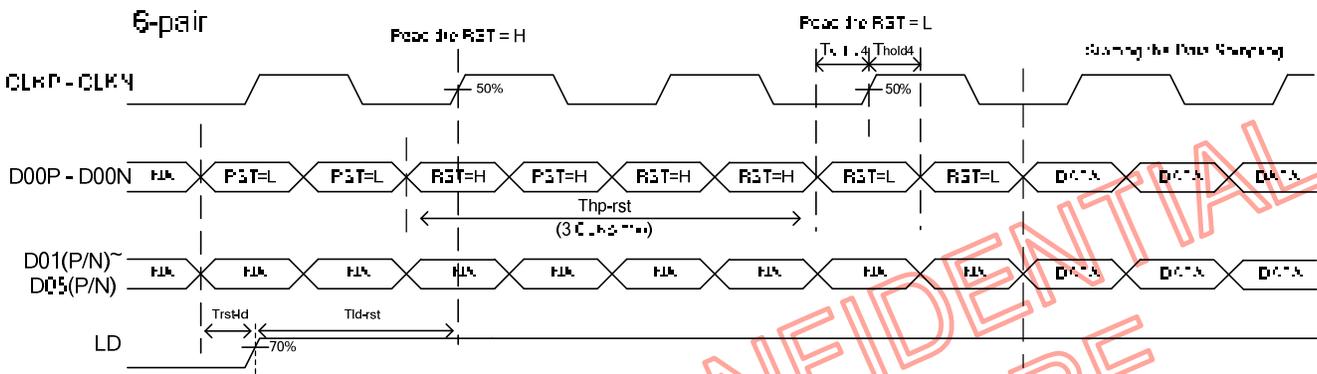
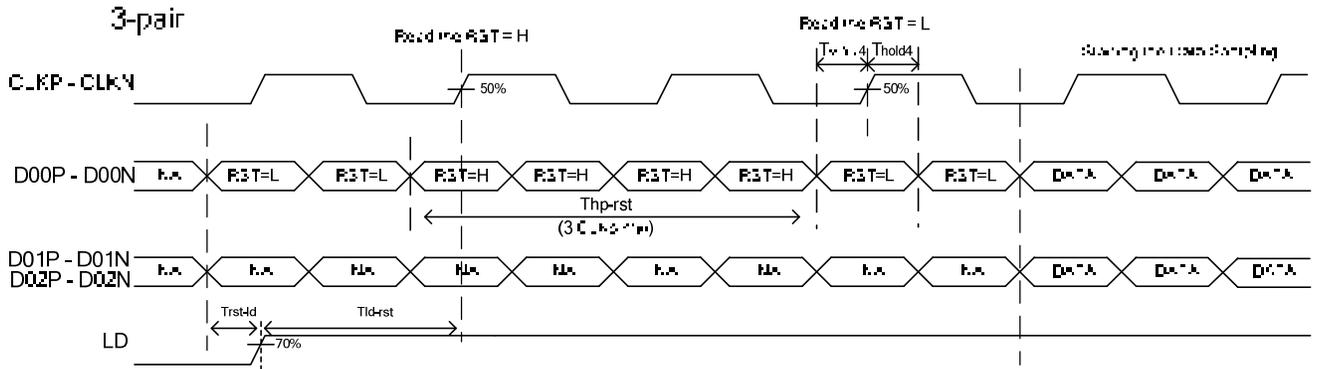
3-pair



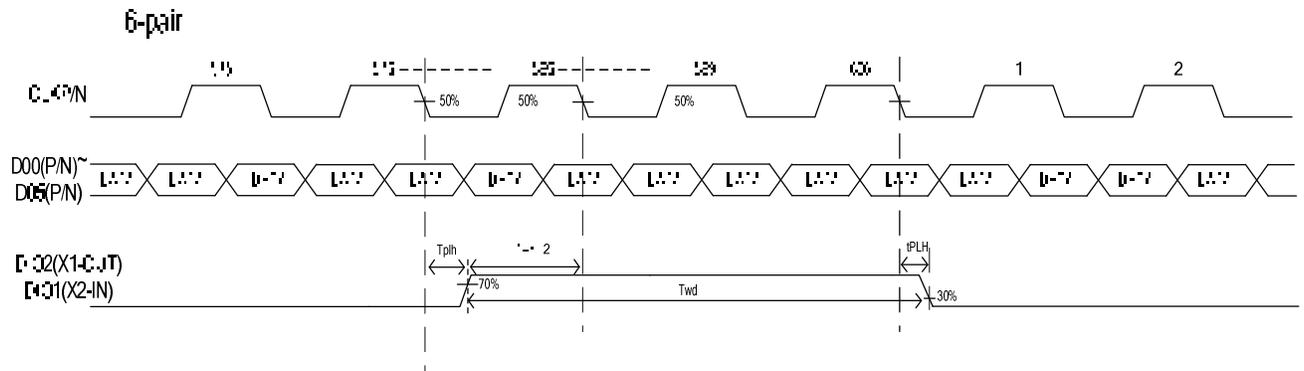
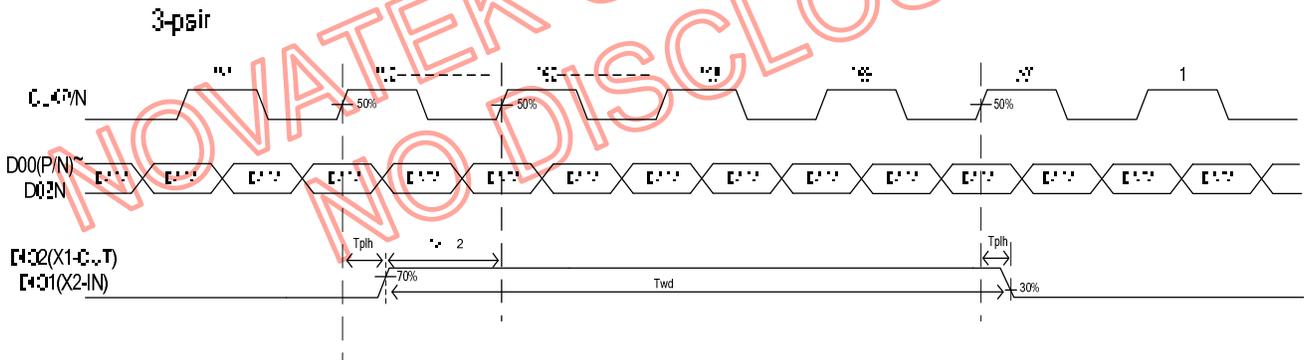
6-pair



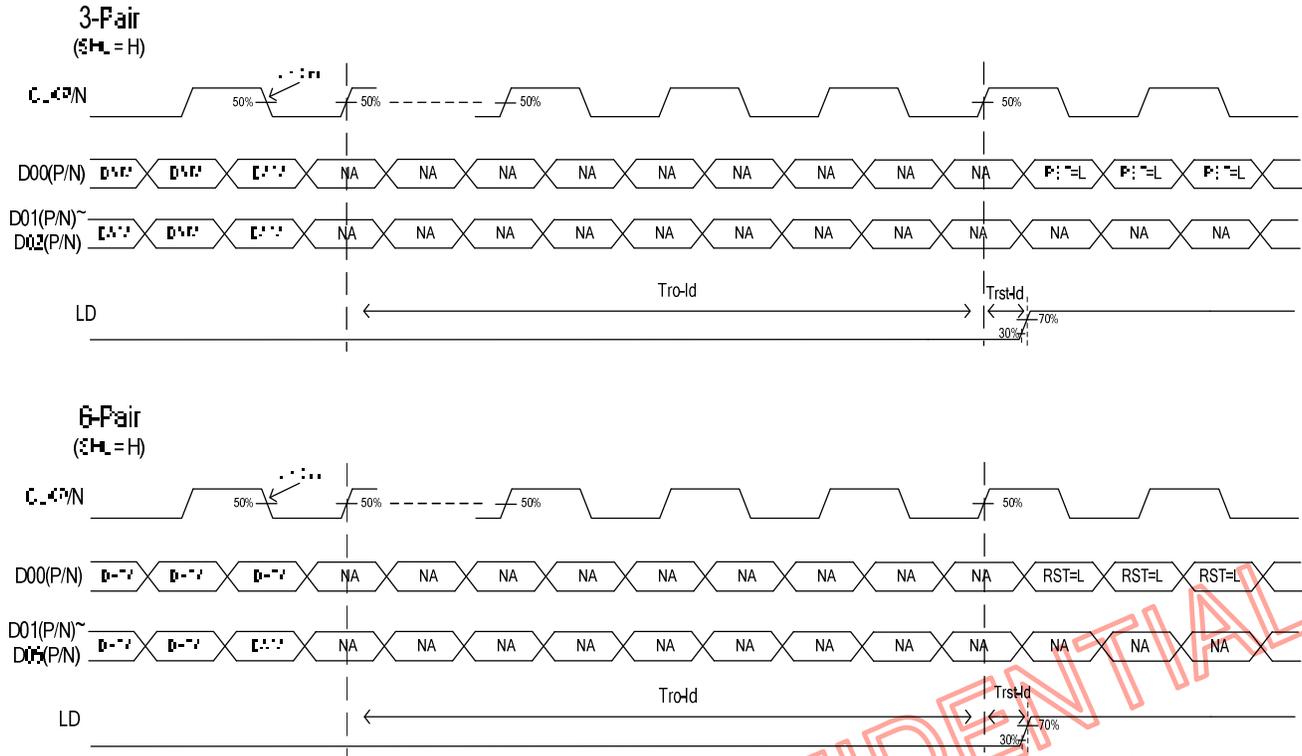
### 3.2 Input Data Timing (Lead Chip)



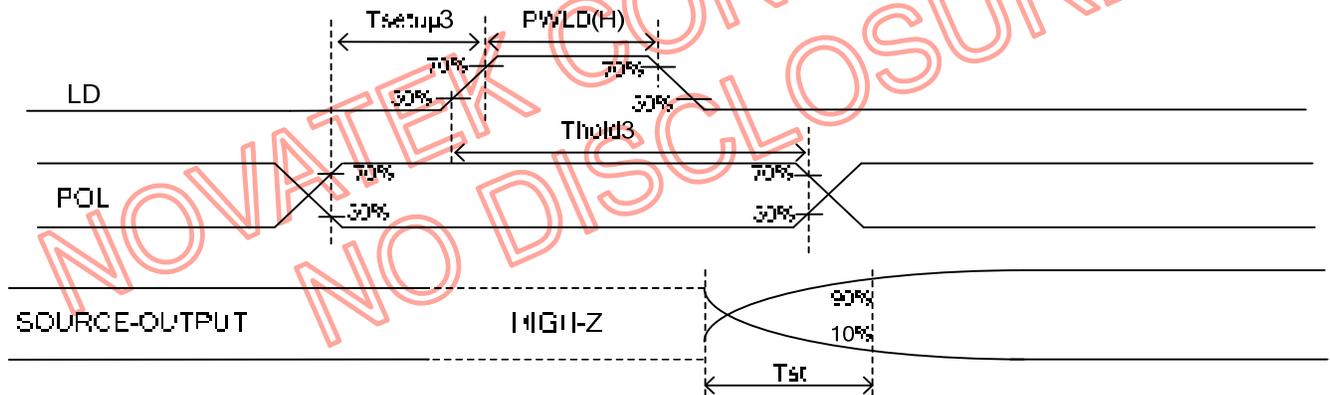
### 3.3 Input Data Timing (Cascade Chip)



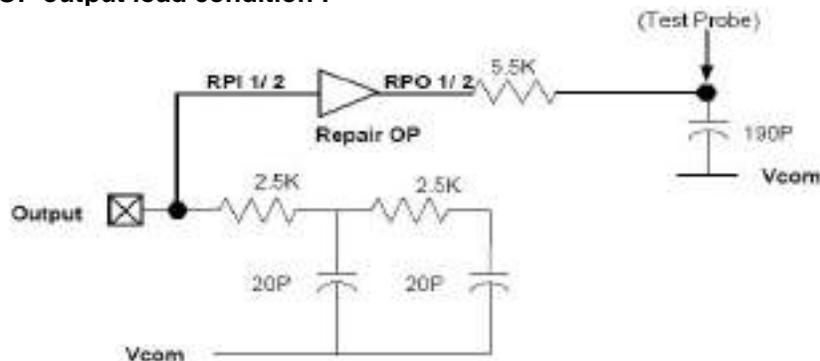
### 3.4 Last Data Sampling to LD Timing



### 3.5 Output Timing

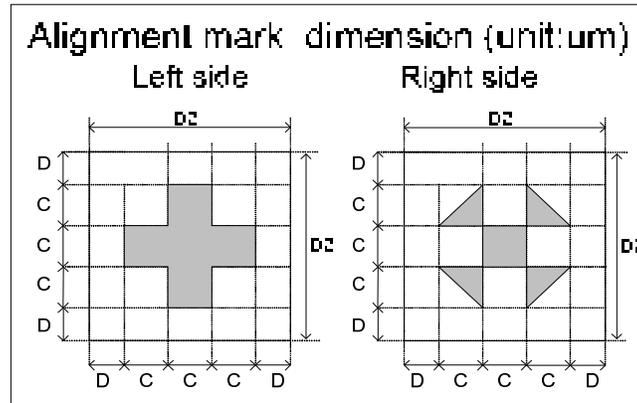


Repair OP output load condition :





## 1. Alignment Mark

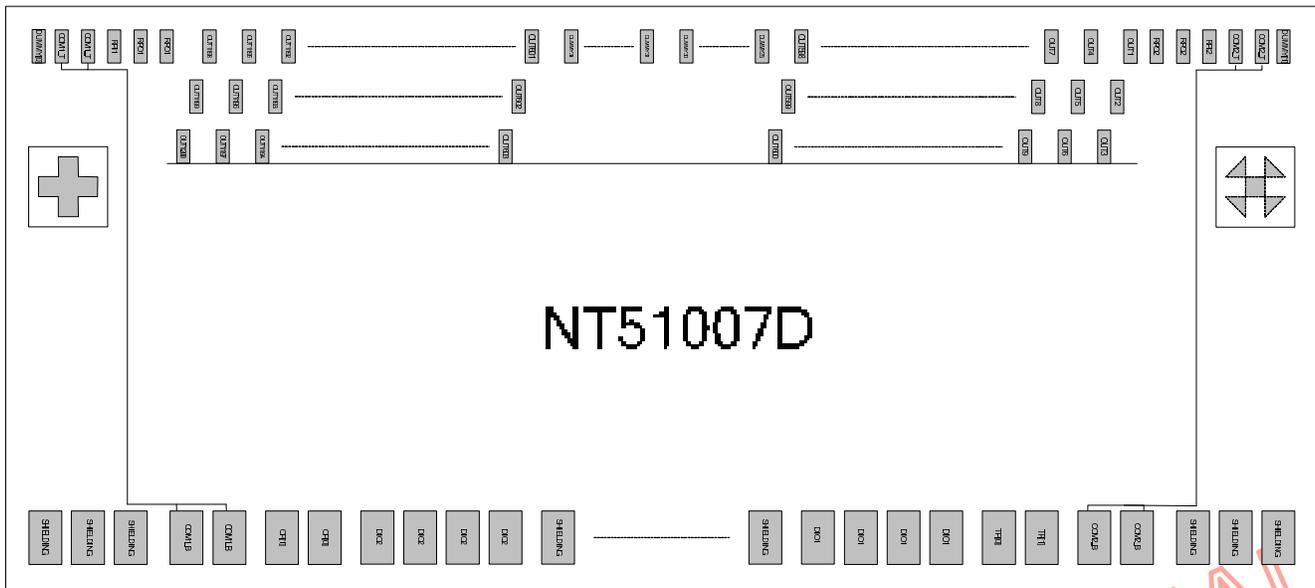


## 2. Pad Information

Symbol	Dimension in um	Symbol	Dimension in um
A	22	C	30
A1	38	C1	24010(Max)
A2	100	C2	831(Max)
A3	19	C3	280(Max)
A4	59	C4	80
B	16	D	15
B1	66	D1	57(Max)
B2	90	D2	120
B3	38	D3	30
B4	36	D4	21
		D5	51(Max)
		D6	50(Max)

Chip size: 24010(X) x 831(Y) um<sup>2</sup> (scribe line included)

## Appendix A: Pad Coordinate



No	Name	CX	CY	Width	Height
1	SHIELDING[0]	-11915	-320	66	90
2	SHIELDING[1]	-11833	-320	66	90
3	SHIELDING[2]	-11751	-320	66	90
4	COM1_B	-11647	-320	66	90
5	COM1_B	-11565	-320	66	90
6	OP[1]	-11463	-320	66	90
7	OP[0]	-11381	-320	66	90
8	DIO2	-11279	-320	66	90
9	DIO2	-11197	-320	66	90
10	DIO2	-11115	-320	66	90
11	DIO2	-11033	-320	66	90
12	SHIELDING[3]	-10931	-320	66	90
13	AVDD	-10829	-320	66	90
14	AVDD	-10747	-320	66	90
15	AVDD	-10665	-320	66	90
16	AVDD	-10583	-320	66	90
17	AVDD	-10501	-320	66	90
18	AVDD	-10419	-320	66	90
19	AVDD	-10337	-320	66	90

20	AVDD	-10255	-320	66	90
21	AVDD	-10173	-320	66	90
22	AVDD	-10091	-320	66	90
23	ENREOP	-9989	-320	66	90
24	ENREOP	-9907	-320	66	90
25	ENREOP	-9825	-320	66	90
26	CHNSL[2]	-9723	-320	66	90
27	CHNSL[2]	-9641	-320	66	90
28	CHNSL[2]	-9559	-320	66	90
29	GND	-9457	-320	66	90
30	GND	-9375	-320	66	90
31	GND	-9293	-320	66	90
32	GND	-9211	-320	66	90
33	GND	-9129	-320	66	90
34	GND	-9047	-320	66	90
35	GND	-8965	-320	66	90
36	GND	-8883	-320	66	90
37	CHNSL[1]	-8781	-320	66	90
38	CHNSL[1]	-8699	-320	66	90
39	CHNSL[1]	-8617	-320	66	90

40	VCC	-8515	-320	66	90
41	VCC	-8433	-320	66	90
42	VCC	-8351	-320	66	90
43	VCC	-8269	-320	66	90
44	VCC	-8187	-320	66	90
45	VCC	-8105	-320	66	90
46	VCC	-8023	-320	66	90
47	VCC	-7941	-320	66	90
48	CHNSL[0]	-7839	-320	66	90
49	POL	-7737	-320	66	90
50	POL	-7655	-320	66	90
51	POL	-7573	-320	66	90
52	POL	-7491	-320	66	90
53	CS[0]	-7389	-320	66	90
54	REV	-7287	-320	66	90
55	REV	-7205	-320	66	90
56	REV	-7123	-320	66	90
57	REV	-7041	-320	66	90
58	CS[1]	-6939	-320	66	90
59	LD	-6837	-320	66	90
60	LD	-6755	-320	66	90
61	LD	-6673	-320	66	90
62	LD	-6591	-320	66	90
63	SHIELDING[6]	-6489	-320	66	90
64	D25	-6387	-320	66	90
65	D25	-6305	-320	66	90
66	D25	-6223	-320	66	90
67	D25	-6141	-320	66	90
68	D24	-6039	-320	66	90
69	D24	-5957	-320	66	90
70	D24	-5875	-320	66	90
71	D24	-5793	-320	66	90
72	D23	-5691	-320	66	90
73	D23	-5609	-320	66	90
74	D23	-5527	-320	66	90
75	D23	-5445	-320	66	90
76	D22	-5343	-320	66	90
77	D22	-5261	-320	66	90
78	D22	-5179	-320	66	90

79	D22	-5097	-320	66	90
80	D21	-4995	-320	66	90
81	D21	-4913	-320	66	90
82	D21	-4831	-320	66	90
83	D21	-4749	-320	66	90
84	D20	-4647	-320	66	90
85	D20	-4565	-320	66	90
86	D20	-4483	-320	66	90
87	D20	-4401	-320	66	90
88	SHIELDING[7]	-4299	-320	66	90
89	AVSS	-4197	-320	66	90
90	AVSS	-4115	-320	66	90
91	AVSS	-4033	-320	66	90
92	AVSS	-3951	-320	66	90
93	AVSS	-3869	-320	66	90
94	AVSS	-3787	-320	66	90
95	AVSS	-3705	-320	66	90
96	AVSS	-3623	-320	66	90
97	AVSS	-3541	-320	66	90
98	AVSS	-3459	-320	66	90
99	SHIELDING[8]	-3357	-320	66	90
100	V14	-3255	-320	66	90
101	V14	-3173	-320	66	90
102	V14	-3091	-320	66	90
103	V14	-3009	-320	66	90
104	V13	-2907	-320	66	90
105	V13	-2825	-320	66	90
106	V13	-2743	-320	66	90
107	V13	-2661	-320	66	90
108	V12	-2559	-320	66	90
109	V12	-2477	-320	66	90
110	V12	-2395	-320	66	90
111	V12	-2313	-320	66	90
112	V11	-2211	-320	66	90
113	V11	-2129	-320	66	90
114	V11	-2047	-320	66	90
115	V11	-1965	-320	66	90
116	V10	-1863	-320	66	90
117	V10	-1781	-320	66	90

118	V10	-1699	-320	66	90
119	V10	-1617	-320	66	90
120	V9	-1515	-320	66	90
121	V9	-1433	-320	66	90
122	V9	-1351	-320	66	90
123	V9	-1269	-320	66	90
124	V8	-1167	-320	66	90
125	V8	-1085	-320	66	90
126	V8	-1003	-320	66	90
127	V8	-921	-320	66	90
128	V7	-819	-320	66	90
129	V7	-737	-320	66	90
130	V7	-655	-320	66	90
131	V7	-573	-320	66	90
132	V6	-471	-320	66	90
133	V6	-389	-320	66	90
134	V6	-307	-320	66	90
135	V6	-225	-320	66	90
136	V5	-123	-320	66	90
137	V5	-41	-320	66	90
138	V5	41	-320	66	90
139	V5	123	-320	66	90
140	V4	225	-320	66	90
141	V4	307	-320	66	90
142	V4	389	-320	66	90
143	V4	471	-320	66	90
144	V3	573	-320	66	90
145	V3	655	-320	66	90
146	V3	737	-320	66	90
147	V3	819	-320	66	90
148	V2	921	-320	66	90
149	V2	1003	-320	66	90
150	V2	1085	-320	66	90
151	V2	1167	-320	66	90
152	V1	1269	-320	66	90
153	V1	1351	-320	66	90
154	V1	1433	-320	66	90
155	V1	1515	-320	66	90
156	SHIELDING[9]	1617	-320	66	90

157	AVDD	1719	-320	66	90
158	AVDD	1801	-320	66	90
159	AVDD	1883	-320	66	90
160	AVDD	1965	-320	66	90
161	AVDD	2047	-320	66	90
162	AVDD	2129	-320	66	90
163	AVDD	2211	-320	66	90
164	AVDD	2293	-320	66	90
165	AVDD	2375	-320	66	90
166	AVDD	2457	-320	66	90
167	SHIELDING[10]	2559	-320	66	90
168	D15	2661	-320	66	90
169	D15	2743	-320	66	90
170	D15	2825	-320	66	90
171	D15	2907	-320	66	90
172	D14	3009	-320	66	90
173	D14	3091	-320	66	90
174	D14	3173	-320	66	90
175	D14	3255	-320	66	90
176	D13	3357	-320	66	90
177	D13	3439	-320	66	90
178	D13	3521	-320	66	90
179	D13	3603	-320	66	90
180	D12	3705	-320	66	90
181	D12	3787	-320	66	90
182	D12	3869	-320	66	90
183	D12	3951	-320	66	90
184	D11	4053	-320	66	90
185	D11	4135	-320	66	90
186	D11	4217	-320	66	90
187	D11	4299	-320	66	90
188	D10	4401	-320	66	90
189	D10	4483	-320	66	90
190	D10	4565	-320	66	90
191	D10	4647	-320	66	90
192	D05	4749	-320	66	90
193	D05	4831	-320	66	90
194	D05	4913	-320	66	90
195	D05	4995	-320	66	90

196	D04	5097	-320	66	90
197	D04	5179	-320	66	90
198	D04	5261	-320	66	90
199	D04	5343	-320	66	90
200	D03	5445	-320	66	90
201	D03	5527	-320	66	90
202	D03	5609	-320	66	90
203	D03	5691	-320	66	90
204	D02	5793	-320	66	90
205	D02	5875	-320	66	90
206	D02	5957	-320	66	90
207	D02	6039	-320	66	90
208	D01	6141	-320	66	90
209	D01	6223	-320	66	90
210	D01	6305	-320	66	90
211	D01	6387	-320	66	90
212	D00	6489	-320	66	90
213	D00	6571	-320	66	90
214	D00	6653	-320	66	90
215	D00	6735	-320	66	90
216	SHIELDING[11]	6837	-320	66	90
217	CLKN	6939	-320	66	90
218	CLKN	7021	-320	66	90
219	CLKN	7103	-320	66	90
220	CLKN	7185	-320	66	90
221	CLK	7287	-320	66	90
222	CLK	7369	-320	66	90
223	CLK	7451	-320	66	90
224	CLK	7533	-320	66	90
225	SHL	7635	-320	66	90
226	SHL	7717	-320	66	90
227	SHL	7799	-320	66	90
228	EDGSL	7901	-320	66	90
229	EDGSL	7983	-320	66	90
230	EDGSL	8065	-320	66	90
231	TTLRSDS	8167	-320	66	90
232	TTLRSDS	8249	-320	66	90
233	TTLRSDS	8331	-320	66	90
234	MILVDS	8433	-320	66	90

235	VCC	8535	-320	66	90
236	VCC	8617	-320	66	90
237	VCC	8699	-320	66	90
238	VCC	8781	-320	66	90
239	VCC	8863	-320	66	90
240	VCC	8945	-320	66	90
241	VCC	9027	-320	66	90
242	VCC	9109	-320	66	90
243	SWB	9211	-320	66	90
244	GND	9313	-320	66	90
245	GND	9395	-320	66	90
246	GND	9477	-320	66	90
247	GND	9559	-320	66	90
248	GND	9641	-320	66	90
249	GND	9723	-320	66	90
250	GND	9805	-320	66	90
251	GND	9887	-320	66	90
252	SHIELDING[11]	9989	-320	66	90
253	AVSS	10091	-320	66	90
254	AVSS	10173	-320	66	90
255	AVSS	10255	-320	66	90
256	AVSS	10337	-320	66	90
257	AVSS	10419	-320	66	90
258	AVSS	10501	-320	66	90
259	AVSS	10583	-320	66	90
260	AVSS	10665	-320	66	90
261	AVSS	10747	-320	66	90
262	AVSS	10829	-320	66	90
263	SHIELDING[12]	10931	-320	66	90
264	DIO1	11033	-320	66	90
265	DIO1	11115	-320	66	90
266	DIO1	11197	-320	66	90
267	DIO1	11279	-320	66	90
268	TP[0]	11381	-320	66	90
269	TP[1]	11463	-320	66	90
270	COM2_B	11565	-320	66	90
271	COM2_B	11647	-320	66	90
272	SHIELDING[15]	11751	-320	66	90
273	SHIELDING[16]	11833	-320	66	90

274	SHIELDING[17]	11915	-320	66	90
275	DUMMY[1]	11937	315	22	100
276	COM2_T	11893	315	22	100
277	COM2_T	11849	315	22	100
278	RPI2	11805	315	22	100
279	RPO2	11761	315	22	100
280	RPO2	11717	315	22	100
281	OUT[1]	11675.5	315	19	100
282	OUT[2]	11656.5	185	19	100
283	OUT[3]	11637.5	55	19	100
284	OUT[4]	11618.5	315	19	100
285	OUT[5]	11599.5	185	19	100
286	OUT[6]	11580.5	55	19	100
287	OUT[7]	11561.5	315	19	100
288	OUT[8]	11542.5	185	19	100
289	OUT[9]	11523.5	55	19	100
290	OUT[10]	11504.5	315	19	100
291	OUT[11]	11485.5	185	19	100
292	OUT[12]	11466.5	55	19	100
293	OUT[13]	11447.5	315	19	100
294	OUT[14]	11428.5	185	19	100
295	OUT[15]	11409.5	55	19	100
296	OUT[16]	11390.5	315	19	100
297	OUT[17]	11371.5	185	19	100
298	OUT[18]	11352.5	55	19	100
299	OUT[19]	11333.5	315	19	100
300	OUT[20]	11314.5	185	19	100
301	OUT[21]	11295.5	55	19	100
302	OUT[22]	11276.5	315	19	100
303	OUT[23]	11257.5	185	19	100
304	OUT[24]	11238.5	55	19	100
305	OUT[25]	11219.5	315	19	100
306	OUT[26]	11200.5	185	19	100
307	OUT[27]	11181.5	55	19	100
308	OUT[28]	11162.5	315	19	100
309	OUT[29]	11143.5	185	19	100
310	OUT[30]	11124.5	55	19	100
311	OUT[31]	11105.5	315	19	100
312	OUT[32]	11086.5	185	19	100

313	OUT[33]	11067.5	55	19	100
314	OUT[34]	11048.5	315	19	100
315	OUT[35]	11029.5	185	19	100
316	OUT[36]	11010.5	55	19	100
317	OUT[37]	10991.5	315	19	100
318	OUT[38]	10972.5	185	19	100
319	OUT[39]	10953.5	55	19	100
320	OUT[40]	10934.5	315	19	100
321	OUT[41]	10915.5	185	19	100
322	OUT[42]	10896.5	55	19	100
323	OUT[43]	10877.5	315	19	100
324	OUT[44]	10858.5	185	19	100
325	OUT[45]	10839.5	55	19	100
326	OUT[46]	10820.5	315	19	100
327	OUT[47]	10801.5	185	19	100
328	OUT[48]	10782.5	55	19	100
329	OUT[49]	10763.5	315	19	100
330	OUT[50]	10744.5	185	19	100
331	OUT[51]	10725.5	55	19	100
332	OUT[52]	10706.5	315	19	100
333	OUT[53]	10687.5	185	19	100
334	OUT[54]	10668.5	55	19	100
335	OUT[55]	10649.5	315	19	100
336	OUT[56]	10630.5	185	19	100
337	OUT[57]	10611.5	55	19	100
338	OUT[58]	10592.5	315	19	100
339	OUT[59]	10573.5	185	19	100
340	OUT[60]	10554.5	55	19	100
341	OUT[61]	10535.5	315	19	100
342	OUT[62]	10516.5	185	19	100
343	OUT[63]	10497.5	55	19	100
344	OUT[64]	10478.5	315	19	100
345	OUT[65]	10459.5	185	19	100
346	OUT[66]	10440.5	55	19	100
347	OUT[67]	10421.5	315	19	100
348	OUT[68]	10402.5	185	19	100
349	OUT[69]	10383.5	55	19	100
350	OUT[70]	10364.5	315	19	100
351	OUT[71]	10345.5	185	19	100

352	OUT[72]	10326.5	55	19	100
353	OUT[73]	10307.5	315	19	100
354	OUT[74]	10288.5	185	19	100
355	OUT[75]	10269.5	55	19	100
356	OUT[76]	10250.5	315	19	100
357	OUT[77]	10231.5	185	19	100
358	OUT[78]	10212.5	55	19	100
359	OUT[79]	10193.5	315	19	100
360	OUT[80]	10174.5	185	19	100
361	OUT[81]	10155.5	55	19	100
362	OUT[82]	10136.5	315	19	100
363	OUT[83]	10117.5	185	19	100
364	OUT[84]	10098.5	55	19	100
365	OUT[85]	10079.5	315	19	100
366	OUT[86]	10060.5	185	19	100
367	OUT[87]	10041.5	55	19	100
368	OUT[88]	10022.5	315	19	100
369	OUT[89]	10003.5	185	19	100
370	OUT[90]	9984.5	55	19	100
371	OUT[91]	9965.5	315	19	100
372	OUT[92]	9946.5	185	19	100
373	OUT[93]	9927.5	55	19	100
374	OUT[94]	9908.5	315	19	100
375	OUT[95]	9889.5	185	19	100
376	OUT[96]	9870.5	55	19	100
377	OUT[97]	9851.5	315	19	100
378	OUT[98]	9832.5	185	19	100
379	OUT[99]	9813.5	55	19	100
380	OUT[100]	9794.5	315	19	100
381	OUT[101]	9775.5	185	19	100
382	OUT[102]	9756.5	55	19	100
383	OUT[103]	9737.5	315	19	100
384	OUT[104]	9718.5	185	19	100
385	OUT[105]	9699.5	55	19	100
386	OUT[106]	9680.5	315	19	100
387	OUT[107]	9661.5	185	19	100
388	OUT[108]	9642.5	55	19	100
389	OUT[109]	9623.5	315	19	100
390	OUT[110]	9604.5	185	19	100

391	OUT[111]	9585.5	55	19	100
392	OUT[112]	9566.5	315	19	100
393	OUT[113]	9547.5	185	19	100
394	OUT[114]	9528.5	55	19	100
395	OUT[115]	9509.5	315	19	100
396	OUT[116]	9490.5	185	19	100
397	OUT[117]	9471.5	55	19	100
398	OUT[118]	9452.5	315	19	100
399	OUT[119]	9433.5	185	19	100
400	OUT[120]	9414.5	55	19	100
401	OUT[121]	9395.5	315	19	100
402	OUT[122]	9376.5	185	19	100
403	OUT[123]	9357.5	55	19	100
404	OUT[124]	9338.5	315	19	100
405	OUT[125]	9319.5	185	19	100
406	OUT[126]	9300.5	55	19	100
407	OUT[127]	9281.5	315	19	100
408	OUT[128]	9262.5	185	19	100
409	OUT[129]	9243.5	55	19	100
410	OUT[130]	9224.5	315	19	100
411	OUT[131]	9205.5	185	19	100
412	OUT[132]	9186.5	55	19	100
413	OUT[133]	9167.5	315	19	100
414	OUT[134]	9148.5	185	19	100
415	OUT[135]	9129.5	55	19	100
416	OUT[136]	9110.5	315	19	100
417	OUT[137]	9091.5	185	19	100
418	OUT[138]	9072.5	55	19	100
419	OUT[139]	9053.5	315	19	100
420	OUT[140]	9034.5	185	19	100
421	OUT[141]	9015.5	55	19	100
422	OUT[142]	8996.5	315	19	100
423	OUT[143]	8977.5	185	19	100
424	OUT[144]	8958.5	55	19	100
425	OUT[145]	8939.5	315	19	100
426	OUT[146]	8920.5	185	19	100
427	OUT[147]	8901.5	55	19	100
428	OUT[148]	8882.5	315	19	100
429	OUT[149]	8863.5	185	19	100

430	OUT[150]	8844.5	55	19	100
431	OUT[151]	8825.5	315	19	100
432	OUT[152]	8806.5	185	19	100
433	OUT[153]	8787.5	55	19	100
434	OUT[154]	8768.5	315	19	100
435	OUT[155]	8749.5	185	19	100
436	OUT[156]	8730.5	55	19	100
437	OUT[157]	8711.5	315	19	100
438	OUT[158]	8692.5	185	19	100
439	OUT[159]	8673.5	55	19	100
440	OUT[160]	8654.5	315	19	100
441	OUT[161]	8635.5	185	19	100
442	OUT[162]	8616.5	55	19	100
443	OUT[163]	8597.5	315	19	100
444	OUT[164]	8578.5	185	19	100
445	OUT[165]	8559.5	55	19	100
446	OUT[166]	8540.5	315	19	100
447	OUT[167]	8521.5	185	19	100
448	OUT[168]	8502.5	55	19	100
449	OUT[169]	8483.5	315	19	100
450	OUT[170]	8464.5	185	19	100
451	OUT[171]	8445.5	55	19	100
452	OUT[172]	8426.5	315	19	100
453	OUT[173]	8407.5	185	19	100
454	OUT[174]	8388.5	55	19	100
455	OUT[175]	8369.5	315	19	100
456	OUT[176]	8350.5	185	19	100
457	OUT[177]	8331.5	55	19	100
458	OUT[178]	8312.5	315	19	100
459	OUT[179]	8293.5	185	19	100
460	OUT[180]	8274.5	55	19	100
461	OUT[181]	8255.5	315	19	100
462	OUT[182]	8236.5	185	19	100
463	OUT[183]	8217.5	55	19	100
464	OUT[184]	8198.5	315	19	100
465	OUT[185]	8179.5	185	19	100
466	OUT[186]	8160.5	55	19	100
467	OUT[187]	8141.5	315	19	100
468	OUT[188]	8122.5	185	19	100

469	OUT[189]	8103.5	55	19	100
470	OUT[190]	8084.5	315	19	100
471	OUT[191]	8065.5	185	19	100
472	OUT[192]	8046.5	55	19	100
473	OUT[193]	8027.5	315	19	100
474	OUT[194]	8008.5	185	19	100
475	OUT[195]	7989.5	55	19	100
476	OUT[196]	7970.5	315	19	100
477	OUT[197]	7951.5	185	19	100
478	OUT[198]	7932.5	55	19	100
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487	OUT[207]	7761.5	55	19	100
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489	OUT[209]	7723.5	185	19	100
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491	OUT[211]	7685.5	315	19	100
492	OUT[212]	7666.5	185	19	100
493	OUT[213]	7647.5	55	19	100
494	OUT[214]	7628.5	315	19	100
495	OUT[215]	7609.5	185	19	100
496	OUT[216]	7590.5	55	19	100
497	OUT[217]	7571.5	315	19	100
498	OUT[218]	7552.5	185	19	100
499	OUT[219]	7533.5	55	19	100
500	OUT[220]	7514.5	315	19	100
501	OUT[221]	7495.5	185	19	100
502	OUT[222]	7476.5	55	19	100
503	OUT[223]	7457.5	315	19	100
504	OUT[224]	7438.5	185	19	100
505	OUT[225]	7419.5	55	19	100
506	OUT[226]	7400.5	315	19	100
507	OUT[227]	7381.5	185	19	100

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509	OUT[229]	7343.5	315	19	100
510	OUT[230]	7324.5	185	19	100
511	OUT[231]	7305.5	55	19	100
512	OUT[232]	7286.5	315	19	100
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515	OUT[235]	7229.5	315	19	100
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532	OUT[252]	6906.5	55	19	100
533	OUT[253]	6887.5	315	19	100
534	OUT[254]	6868.5	185	19	100
535	OUT[255]	6849.5	55	19	100
536	OUT[256]	6830.5	315	19	100
537	OUT[257]	6811.5	185	19	100
538	OUT[258]	6792.5	55	19	100
539	OUT[259]	6773.5	315	19	100
540	OUT[260]	6754.5	185	19	100
541	OUT[261]	6735.5	55	19	100
542	OUT[262]	6716.5	315	19	100
543	OUT[263]	6697.5	185	19	100
544	OUT[264]	6678.5	55	19	100
545	OUT[265]	6659.5	315	19	100
546	OUT[266]	6640.5	185	19	100

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548	OUT[268]	6602.5	315	19	100
549	OUT[269]	6583.5	185	19	100
550	OUT[270]	6564.5	55	19	100
551	OUT[271]	6545.5	315	19	100
552	OUT[272]	6526.5	185	19	100
553	OUT[273]	6507.5	55	19	100
554	OUT[274]	6488.5	315	19	100
555	OUT[275]	6469.5	185	19	100
556	OUT[276]	6450.5	55	19	100
557	OUT[277]	6431.5	315	19	100
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571	OUT[291]	6165.5	55	19	100
572	OUT[292]	6146.5	315	19	100
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574	OUT[294]	6108.5	55	19	100
575	OUT[295]	6089.5	315	19	100
576	OUT[296]	6070.5	185	19	100
577	OUT[297]	6051.5	55	19	100
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580	OUT[300]	5994.5	55	19	100
581	OUT[301]	5975.5	315	19	100
582	OUT[302]	5956.5	185	19	100
583	OUT[303]	5937.5	55	19	100
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585	OUT[305]	5899.5	185	19	100

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587	OUT[307]	5861.5	315	19	100
588	OUT[308]	5842.5	185	19	100
589	OUT[309]	5823.5	55	19	100
590	OUT[310]	5804.5	315	19	100
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595	OUT[315]	5709.5	55	19	100
596	OUT[316]	5690.5	315	19	100
597	OUT[317]	5671.5	185	19	100
598	OUT[318]	5652.5	55	19	100
599	OUT[319]	5633.5	315	19	100
600	OUT[320]	5614.5	185	19	100
601	OUT[321]	5595.5	55	19	100
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609	OUT[329]	5443.5	185	19	100
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611	OUT[331]	5405.5	315	19	100
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614	OUT[334]	5348.5	315	19	100
615	OUT[335]	5329.5	185	19	100
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620	OUT[340]	5234.5	315	19	100
621	OUT[341]	5215.5	185	19	100
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624	OUT[344]	5158.5	185	19	100

625	OUT[345]	5139.5	55	19	100
626	OUT[346]	5120.5	315	19	100
627	OUT[347]	5101.5	185	19	100
628	OUT[348]	5082.5	55	19	100
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632	OUT[352]	5006.5	315	19	100
633	OUT[353]	4987.5	185	19	100
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636	OUT[356]	4930.5	185	19	100
637	OUT[357]	4911.5	55	19	100
638	OUT[358]	4892.5	315	19	100
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640	OUT[360]	4854.5	55	19	100
641	OUT[361]	4835.5	315	19	100
642	OUT[362]	4816.5	185	19	100
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644	OUT[364]	4778.5	315	19	100
645	OUT[365]	4759.5	185	19	100
646	OUT[366]	4740.5	55	19	100
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648	OUT[368]	4702.5	185	19	100
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661	OUT[381]	4455.5	55	19	100
662	OUT[382]	4436.5	315	19	100
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666	OUT[386]	4360.5	185	19	100
667	OUT[387]	4341.5	55	19	100
668	OUT[388]	4322.5	315	19	100
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670	OUT[390]	4284.5	55	19	100
671	OUT[391]	4265.5	315	19	100
672	OUT[392]	4246.5	185	19	100
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674	OUT[394]	4208.5	315	19	100
675	OUT[395]	4189.5	185	19	100
676	OUT[396]	4170.5	55	19	100
677	OUT[397]	4151.5	315	19	100
678	OUT[398]	4132.5	185	19	100
679	OUT[399]	4113.5	55	19	100
680	OUT[400]	4094.5	315	19	100
681	OUT[401]	4075.5	185	19	100
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683	OUT[403]	4037.5	315	19	100
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686	OUT[406]	3980.5	315	19	100
687	OUT[407]	3961.5	185	19	100
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691	OUT[411]	3885.5	55	19	100
692	OUT[412]	3866.5	315	19	100
693	OUT[413]	3847.5	185	19	100
694	OUT[414]	3828.5	55	19	100
695	OUT[415]	3809.5	315	19	100
696	OUT[416]	3790.5	185	19	100
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699	OUT[419]	3733.5	185	19	100
700	OUT[420]	3714.5	55	19	100
701	OUT[421]	3695.5	315	19	100
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705	OUT[425]	3619.5	185	19	100
706	OUT[426]	3600.5	55	19	100
707	OUT[427]	3581.5	315	19	100
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710	OUT[430]	3524.5	315	19	100
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713	OUT[433]	3467.5	315	19	100
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716	OUT[436]	3410.5	315	19	100
717	OUT[437]	3391.5	185	19	100
718	OUT[438]	3372.5	55	19	100
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720	OUT[440]	3334.5	185	19	100
721	OUT[441]	3315.5	55	19	100
722	OUT[442]	3296.5	315	19	100
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726	OUT[446]	3220.5	185	19	100
727	OUT[447]	3201.5	55	19	100
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730	OUT[450]	3144.5	55	19	100
731	OUT[451]	3125.5	315	19	100
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740	OUT[460]	2954.5	315	19	100
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745	OUT[465]	2859.5	55	19	100
746	OUT[466]	2840.5	315	19	100
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752	OUT[472]	2726.5	315	19	100
753	OUT[473]	2707.5	185	19	100
754	OUT[474]	2688.5	55	19	100
755	OUT[475]	2669.5	315	19	100
756	OUT[476]	2650.5	185	19	100
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761	OUT[481]	2555.5	315	19	100
762	OUT[482]	2536.5	185	19	100
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770	OUT[490]	2384.5	315	19	100
771	OUT[491]	2365.5	185	19	100
772	OUT[492]	2346.5	55	19	100
773	OUT[493]	2327.5	315	19	100
774	OUT[494]	2308.5	185	19	100
775	OUT[495]	2289.5	55	19	100
776	OUT[496]	2270.5	315	19	100
777	OUT[497]	2251.5	185	19	100
778	OUT[498]	2232.5	55	19	100
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780	OUT[500]	2194.5	185	19	100

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782	OUT[502]	2156.5	315	19	100
783	OUT[503]	2137.5	185	19	100
784	OUT[504]	2118.5	55	19	100
785	OUT[505]	2099.5	315	19	100
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787	OUT[507]	2061.5	55	19	100
788	OUT[508]	2042.5	315	19	100
789	OUT[509]	2023.5	185	19	100
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791	OUT[511]	1985.5	315	19	100
792	OUT[512]	1966.5	185	19	100
793	OUT[513]	1947.5	55	19	100
794	OUT[514]	1928.5	315	19	100
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796	OUT[516]	1890.5	55	19	100
797	OUT[517]	1871.5	315	19	100
798	OUT[518]	1852.5	185	19	100
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800	OUT[520]	1814.5	315	19	100
801	OUT[521]	1795.5	185	19	100
802	OUT[522]	1776.5	55	19	100
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807	OUT[527]	1681.5	185	19	100
808	OUT[528]	1662.5	55	19	100
809	OUT[529]	1643.5	315	19	100
810	OUT[530]	1624.5	185	19	100
811	OUT[531]	1605.5	55	19	100
812	OUT[532]	1586.5	315	19	100
813	OUT[533]	1567.5	185	19	100
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816	OUT[536]	1510.5	185	19	100
817	OUT[537]	1491.5	55	19	100
818	OUT[538]	1472.5	315	19	100
819	OUT[539]	1453.5	185	19	100

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822	OUT[542]	1396.5	185	19	100
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829	OUT[549]	1263.5	55	19	100
830	OUT[550]	1244.5	315	19	100
831	OUT[551]	1225.5	185	19	100
832	OUT[552]	1206.5	55	19	100
833	OUT[553]	1187.5	315	19	100
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836	OUT[556]	1130.5	315	19	100
837	OUT[557]	1111.5	185	19	100
838	OUT[558]	1092.5	55	19	100
839	OUT[559]	1073.5	315	19	100
840	OUT[560]	1054.5	185	19	100
841	OUT[561]	1035.5	55	19	100
842	OUT[562]	1016.5	315	19	100
843	OUT[563]	997.5	185	19	100
844	OUT[564]	978.5	55	19	100
845	OUT[565]	959.5	315	19	100
846	OUT[566]	940.5	185	19	100
847	OUT[567]	921.5	55	19	100
848	OUT[568]	902.5	315	19	100
849	OUT[569]	883.5	185	19	100
850	OUT[570]	864.5	55	19	100
851	OUT[571]	845.5	315	19	100
852	OUT[572]	826.5	185	19	100
853	OUT[573]	807.5	55	19	100
854	OUT[574]	788.5	315	19	100
855	OUT[575]	769.5	185	19	100
856	OUT[576]	750.5	55	19	100
857	OUT[577]	731.5	315	19	100
858	OUT[578]	712.5	185	19	100

859	OUT[579]	693.5	55	19	100
860	OUT[580]	674.5	315	19	100
861	OUT[581]	655.5	185	19	100
862	OUT[582]	636.5	55	19	100
863	OUT[583]	617.5	315	19	100
864	OUT[584]	598.5	185	19	100
865	OUT[585]	579.5	55	19	100
866	OUT[586]	560.5	315	19	100
867	OUT[587]	541.5	185	19	100
868	OUT[588]	522.5	55	19	100
869	OUT[589]	503.5	315	19	100
870	OUT[590]	484.5	185	19	100
871	OUT[591]	465.5	55	19	100
872	OUT[592]	446.5	315	19	100
873	OUT[593]	427.5	185	19	100
874	OUT[594]	408.5	55	19	100
875	OUT[595]	389.5	315	19	100
876	OUT[596]	370.5	185	19	100
877	OUT[597]	351.5	55	19	100
878	OUT[598]	332.5	315	19	100
879	OUT[599]	313.5	185	19	100
880	OUT[600]	294.5	55	19	100
881	SHIELDING[18]	275.5	315	19	100
882	SHIELDING[19]	218.5	315	19	100
883	SHIELDING[20]	161.5	315	19	100
884	SHIELDING[21]	104.5	315	19	100
885	SHIELDING[22]	47.5	315	19	100
886	SHIELDING[23]	-9.5	315	19	100
887	SHIELDING[24]	-66.5	315	19	100
888	SHIELDING[25]	-123.5	315	19	100
889	SHIELDING[26]	-180.5	315	19	100
890	SHIELDING[27]	-237.5	315	19	100
891	OUT[601]	-294.5	315	19	100
892	OUT[602]	-313.5	185	19	100
893	OUT[603]	-332.5	55	19	100
894	OUT[604]	-351.5	315	19	100
895	OUT[605]	-370.5	185	19	100
896	OUT[606]	-389.5	55	19	100
897	OUT[607]	-408.5	315	19	100

898	OUT[608]	-427.5	185	19	100
899	OUT[609]	-446.5	55	19	100
900	OUT[610]	-465.5	315	19	100
901	OUT[611]	-484.5	185	19	100
902	OUT[612]	-503.5	55	19	100
903	OUT[613]	-522.5	315	19	100
904	OUT[614]	-541.5	185	19	100
905	OUT[615]	-560.5	55	19	100
906	OUT[616]	-579.5	315	19	100
907	OUT[617]	-598.5	185	19	100
908	OUT[618]	-617.5	55	19	100
909	OUT[619]	-636.5	315	19	100
910	OUT[620]	-655.5	185	19	100
911	OUT[621]	-674.5	55	19	100
912	OUT[622]	-693.5	315	19	100
913	OUT[623]	-712.5	185	19	100
914	OUT[624]	-731.5	55	19	100
915	OUT[625]	-750.5	315	19	100
916	OUT[626]	-769.5	185	19	100
917	OUT[627]	-788.5	55	19	100
918	OUT[628]	-807.5	315	19	100
919	OUT[629]	-826.5	185	19	100
920	OUT[630]	-845.5	55	19	100
921	OUT[631]	-864.5	315	19	100
922	OUT[632]	-883.5	185	19	100
923	OUT[633]	-902.5	55	19	100
924	OUT[634]	-921.5	315	19	100
925	OUT[635]	-940.5	185	19	100
926	OUT[636]	-959.5	55	19	100
927	OUT[637]	-978.5	315	19	100
928	OUT[638]	-997.5	185	19	100
929	OUT[639]	-1016.5	55	19	100
930	OUT[640]	-1035.5	315	19	100
931	OUT[641]	-1054.5	185	19	100
932	OUT[642]	-1073.5	55	19	100
933	OUT[643]	-1092.5	315	19	100
934	OUT[644]	-1111.5	185	19	100
935	OUT[645]	-1130.5	55	19	100
936	OUT[646]	-1149.5	315	19	100

937	OUT[647]	-1168.5	185	19	100
938	OUT[648]	-1187.5	55	19	100
939	OUT[649]	-1206.5	315	19	100
940	OUT[650]	-1225.5	185	19	100
941	OUT[651]	-1244.5	55	19	100
942	OUT[652]	-1263.5	315	19	100
943	OUT[653]	-1282.5	185	19	100
944	OUT[654]	-1301.5	55	19	100
945	OUT[655]	-1320.5	315	19	100
946	OUT[656]	-1339.5	185	19	100
947	OUT[657]	-1358.5	55	19	100
948	OUT[658]	-1377.5	315	19	100
949	OUT[659]	-1396.5	185	19	100
950	OUT[660]	-1415.5	55	19	100
951	OUT[661]	-1434.5	315	19	100
952	OUT[662]	-1453.5	185	19	100
953	OUT[663]	-1472.5	55	19	100
954	OUT[664]	-1491.5	315	19	100
955	OUT[665]	-1510.5	185	19	100
956	OUT[666]	-1529.5	55	19	100
957	OUT[667]	-1548.5	315	19	100
958	OUT[668]	-1567.5	185	19	100
959	OUT[669]	-1586.5	55	19	100
960	OUT[670]	-1605.5	315	19	100
961	OUT[671]	-1624.5	185	19	100
962	OUT[672]	-1643.5	55	19	100
963	OUT[673]	-1662.5	315	19	100
964	OUT[674]	-1681.5	185	19	100
965	OUT[675]	-1700.5	55	19	100
966	OUT[676]	-1719.5	315	19	100
967	OUT[677]	-1738.5	185	19	100
968	OUT[678]	-1757.5	55	19	100
969	OUT[679]	-1776.5	315	19	100
970	OUT[680]	-1795.5	185	19	100
971	OUT[681]	-1814.5	55	19	100
972	OUT[682]	-1833.5	315	19	100
973	OUT[683]	-1852.5	185	19	100
974	OUT[684]	-1871.5	55	19	100
975	OUT[685]	-1890.5	315	19	100

976	OUT[686]	-1909.5	185	19	100
977	OUT[687]	-1928.5	55	19	100
978	OUT[688]	-1947.5	315	19	100
979	OUT[689]	-1966.5	185	19	100
980	OUT[690]	-1985.5	55	19	100
981	OUT[691]	-2004.5	315	19	100
982	OUT[692]	-2023.5	185	19	100
983	OUT[693]	-2042.5	55	19	100
984	OUT[694]	-2061.5	315	19	100
985	OUT[695]	-2080.5	185	19	100
986	OUT[696]	-2099.5	55	19	100
987	OUT[697]	-2118.5	315	19	100
988	OUT[698]	-2137.5	185	19	100
989	OUT[699]	-2156.5	55	19	100
990	OUT[700]	-2175.5	315	19	100
991	OUT[701]	-2194.5	185	19	100
992	OUT[702]	-2213.5	55	19	100
993	OUT[703]	-2232.5	315	19	100
994	OUT[704]	-2251.5	185	19	100
995	OUT[705]	-2270.5	55	19	100
996	OUT[706]	-2289.5	315	19	100
997	OUT[707]	-2308.5	185	19	100
998	OUT[708]	-2327.5	55	19	100
999	OUT[709]	-2346.5	315	19	100
1000	OUT[710]	-2365.5	185	19	100
1001	OUT[711]	-2384.5	55	19	100
1002	OUT[712]	-2403.5	315	19	100
1003	OUT[713]	-2422.5	185	19	100
1004	OUT[714]	-2441.5	55	19	100
1005	OUT[715]	-2460.5	315	19	100
1006	OUT[716]	-2479.5	185	19	100
1007	OUT[717]	-2498.5	55	19	100
1008	OUT[718]	-2517.5	315	19	100
1009	OUT[719]	-2536.5	185	19	100
1010	OUT[720]	-2555.5	55	19	100
1011	OUT[721]	-2574.5	315	19	100
1012	OUT[722]	-2593.5	185	19	100
1013	OUT[723]	-2612.5	55	19	100
1014	OUT[724]	-2631.5	315	19	100

1015	OUT[725]	-2650.5	185	19	100
1016	OUT[726]	-2669.5	55	19	100
1017	OUT[727]	-2688.5	315	19	100
1018	OUT[728]	-2707.5	185	19	100
1019	OUT[729]	-2726.5	55	19	100
1020	OUT[730]	-2745.5	315	19	100
1021	OUT[731]	-2764.5	185	19	100
1022	OUT[732]	-2783.5	55	19	100
1023	OUT[733]	-2802.5	315	19	100
1024	OUT[734]	-2821.5	185	19	100
1025	OUT[735]	-2840.5	55	19	100
1026	OUT[736]	-2859.5	315	19	100
1027	OUT[737]	-2878.5	185	19	100
1028	OUT[738]	-2897.5	55	19	100
1029	OUT[739]	-2916.5	315	19	100
1030	OUT[740]	-2935.5	185	19	100
1031	OUT[741]	-2954.5	55	19	100
1032	OUT[742]	-2973.5	315	19	100
1033	OUT[743]	-2992.5	185	19	100
1034	OUT[744]	-3011.5	55	19	100
1035	OUT[745]	-3030.5	315	19	100
1036	OUT[746]	-3049.5	185	19	100
1037	OUT[747]	-3068.5	55	19	100
1038	OUT[748]	-3087.5	315	19	100
1039	OUT[749]	-3106.5	185	19	100
1040	OUT[750]	-3125.5	55	19	100
1041	OUT[751]	-3144.5	315	19	100
1042	OUT[752]	-3163.5	185	19	100
1043	OUT[753]	-3182.5	55	19	100
1044	OUT[754]	-3201.5	315	19	100
1045	OUT[755]	-3220.5	185	19	100
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1048	OUT[758]	-3277.5	185	19	100
1049	OUT[759]	-3296.5	55	19	100
1050	OUT[760]	-3315.5	315	19	100
1051	OUT[761]	-3334.5	185	19	100
1052	OUT[762]	-3353.5	55	19	100
1053	OUT[763]	-3372.5	315	19	100

1054	OUT[764]	-3391.5	185	19	100
1055	OUT[765]	-3410.5	55	19	100
1056	OUT[766]	-3429.5	315	19	100
1057	OUT[767]	-3448.5	185	19	100
1058	OUT[768]	-3467.5	55	19	100
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1060	OUT[770]	-3505.5	185	19	100
1061	OUT[771]	-3524.5	55	19	100
1062	OUT[772]	-3543.5	315	19	100
1063	OUT[773]	-3562.5	185	19	100
1064	OUT[774]	-3581.5	55	19	100
1065	OUT[775]	-3600.5	315	19	100
1066	OUT[776]	-3619.5	185	19	100
1067	OUT[777]	-3638.5	55	19	100
1068	OUT[778]	-3657.5	315	19	100
1069	OUT[779]	-3676.5	185	19	100
1070	OUT[780]	-3695.5	55	19	100
1071	OUT[781]	-3714.5	315	19	100
1072	OUT[782]	-3733.5	185	19	100
1073	OUT[783]	-3752.5	55	19	100
1074	OUT[784]	-3771.5	315	19	100
1075	OUT[785]	-3790.5	185	19	100
1076	OUT[786]	-3809.5	55	19	100
1077	OUT[787]	-3828.5	315	19	100
1078	OUT[788]	-3847.5	185	19	100
1079	OUT[789]	-3866.5	55	19	100
1080	OUT[790]	-3885.5	315	19	100
1081	OUT[791]	-3904.5	185	19	100
1082	OUT[792]	-3923.5	55	19	100
1083	OUT[793]	-3942.5	315	19	100
1084	OUT[794]	-3961.5	185	19	100
1085	OUT[795]	-3980.5	55	19	100
1086	OUT[796]	-3999.5	315	19	100
1087	OUT[797]	-4018.5	185	19	100
1088	OUT[798]	-4037.5	55	19	100
1089	OUT[799]	-4056.5	315	19	100
1090	OUT[800]	-4075.5	185	19	100
1091	OUT[801]	-4094.5	55	19	100
1092	OUT[802]	-4113.5	315	19	100

1093	OUT[803]	-4132.5	185	19	100
1094	OUT[804]	-4151.5	55	19	100
1095	OUT[805]	-4170.5	315	19	100
1096	OUT[806]	-4189.5	185	19	100
1097	OUT[807]	-4208.5	55	19	100
1098	OUT[808]	-4227.5	315	19	100
1099	OUT[809]	-4246.5	185	19	100
1100	OUT[810]	-4265.5	55	19	100
1101	OUT[811]	-4284.5	315	19	100
1102	OUT[812]	-4303.5	185	19	100
1103	OUT[813]	-4322.5	55	19	100
1104	OUT[814]	-4341.5	315	19	100
1105	OUT[815]	-4360.5	185	19	100
1106	OUT[816]	-4379.5	55	19	100
1107	OUT[817]	-4398.5	315	19	100
1108	OUT[818]	-4417.5	185	19	100
1109	OUT[819]	-4436.5	55	19	100
1110	OUT[820]	-4455.5	315	19	100
1111	OUT[821]	-4474.5	185	19	100
1112	OUT[822]	-4493.5	55	19	100
1113	OUT[823]	-4512.5	315	19	100
1114	OUT[824]	-4531.5	185	19	100
1115	OUT[825]	-4550.5	55	19	100
1116	OUT[826]	-4569.5	315	19	100
1117	OUT[827]	-4588.5	185	19	100
1118	OUT[828]	-4607.5	55	19	100
1119	OUT[829]	-4626.5	315	19	100
1120	OUT[830]	-4645.5	185	19	100
1121	OUT[831]	-4664.5	55	19	100
1122	OUT[832]	-4683.5	315	19	100
1123	OUT[833]	-4702.5	185	19	100
1124	OUT[834]	-4721.5	55	19	100
1125	OUT[835]	-4740.5	315	19	100
1126	OUT[836]	-4759.5	185	19	100
1127	OUT[837]	-4778.5	55	19	100
1128	OUT[838]	-4797.5	315	19	100
1129	OUT[839]	-4816.5	185	19	100
1130	OUT[840]	-4835.5	55	19	100
1131	OUT[841]	-4854.5	315	19	100

1132	OUT[842]	-4873.5	185	19	100
1133	OUT[843]	-4892.5	55	19	100
1134	OUT[844]	-4911.5	315	19	100
1135	OUT[845]	-4930.5	185	19	100
1136	OUT[846]	-4949.5	55	19	100
1137	OUT[847]	-4968.5	315	19	100
1138	OUT[848]	-4987.5	185	19	100
1139	OUT[849]	-5006.5	55	19	100
1140	OUT[850]	-5025.5	315	19	100
1141	OUT[851]	-5044.5	185	19	100
1142	OUT[852]	-5063.5	55	19	100
1143	OUT[853]	-5082.5	315	19	100
1144	OUT[854]	-5101.5	185	19	100
1145	OUT[855]	-5120.5	55	19	100
1146	OUT[856]	-5139.5	315	19	100
1147	OUT[857]	-5158.5	185	19	100
1148	OUT[858]	-5177.5	55	19	100
1149	OUT[859]	-5196.5	315	19	100
1150	OUT[860]	-5215.5	185	19	100
1151	OUT[861]	-5234.5	55	19	100
1152	OUT[862]	-5253.5	315	19	100
1153	OUT[863]	-5272.5	185	19	100
1154	OUT[864]	-5291.5	55	19	100
1155	OUT[865]	-5310.5	315	19	100
1156	OUT[866]	-5329.5	185	19	100
1157	OUT[867]	-5348.5	55	19	100
1158	OUT[868]	-5367.5	315	19	100
1159	OUT[869]	-5386.5	185	19	100
1160	OUT[870]	-5405.5	55	19	100
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1162	OUT[872]	-5443.5	185	19	100
1163	OUT[873]	-5462.5	55	19	100
1164	OUT[874]	-5481.5	315	19	100
1165	OUT[875]	-5500.5	185	19	100
1166	OUT[876]	-5519.5	55	19	100
1167	OUT[877]	-5538.5	315	19	100
1168	OUT[878]	-5557.5	185	19	100
1169	OUT[879]	-5576.5	55	19	100
1170	OUT[880]	-5595.5	315	19	100

1171	OUT[881]	-5614.5	185	19	100
1172	OUT[882]	-5633.5	55	19	100
1173	OUT[883]	-5652.5	315	19	100
1174	OUT[884]	-5671.5	185	19	100
1175	OUT[885]	-5690.5	55	19	100
1176	OUT[886]	-5709.5	315	19	100
1177	OUT[887]	-5728.5	185	19	100
1178	OUT[888]	-5747.5	55	19	100
1179	OUT[889]	-5766.5	315	19	100
1180	OUT[890]	-5785.5	185	19	100
1181	OUT[891]	-5804.5	55	19	100
1182	OUT[892]	-5823.5	315	19	100
1183	OUT[893]	-5842.5	185	19	100
1184	OUT[894]	-5861.5	55	19	100
1185	OUT[895]	-5880.5	315	19	100
1186	OUT[896]	-5899.5	185	19	100
1187	OUT[897]	-5918.5	55	19	100
1188	OUT[898]	-5937.5	315	19	100
1189	OUT[899]	-5956.5	185	19	100
1190	OUT[900]	-5975.5	55	19	100
1191	OUT[901]	-5994.5	315	19	100
1192	OUT[902]	-6013.5	185	19	100
1193	OUT[903]	-6032.5	55	19	100
1194	OUT[904]	-6051.5	315	19	100
1195	OUT[905]	-6070.5	185	19	100
1196	OUT[906]	-6089.5	55	19	100
1197	OUT[907]	-6108.5	315	19	100
1198	OUT[908]	-6127.5	185	19	100
1199	OUT[909]	-6146.5	55	19	100
1200	OUT[910]	-6165.5	315	19	100
1201	OUT[911]	-6184.5	185	19	100
1202	OUT[912]	-6203.5	55	19	100
1203	OUT[913]	-6222.5	315	19	100
1204	OUT[914]	-6241.5	185	19	100
1205	OUT[915]	-6260.5	55	19	100
1206	OUT[916]	-6279.5	315	19	100
1207	OUT[917]	-6298.5	185	19	100
1208	OUT[918]	-6317.5	55	19	100
1209	OUT[919]	-6336.5	315	19	100

1210	OUT[920]	-6355.5	185	19	100
1211	OUT[921]	-6374.5	55	19	100
1212	OUT[922]	-6393.5	315	19	100
1213	OUT[923]	-6412.5	185	19	100
1214	OUT[924]	-6431.5	55	19	100
1215	OUT[925]	-6450.5	315	19	100
1216	OUT[926]	-6469.5	185	19	100
1217	OUT[927]	-6488.5	55	19	100
1218	OUT[928]	-6507.5	315	19	100
1219	OUT[929]	-6526.5	185	19	100
1220	OUT[930]	-6545.5	55	19	100
1221	OUT[931]	-6564.5	315	19	100
1222	OUT[932]	-6583.5	185	19	100
1223	OUT[933]	-6602.5	55	19	100
1224	OUT[934]	-6621.5	315	19	100
1225	OUT[935]	-6640.5	185	19	100
1226	OUT[936]	-6659.5	55	19	100
1227	OUT[937]	-6678.5	315	19	100
1228	OUT[938]	-6697.5	185	19	100
1229	OUT[939]	-6716.5	55	19	100
1230	OUT[940]	-6735.5	315	19	100
1231	OUT[941]	-6754.5	185	19	100
1232	OUT[942]	-6773.5	55	19	100
1233	OUT[943]	-6792.5	315	19	100
1234	OUT[944]	-6811.5	185	19	100
1235	OUT[945]	-6830.5	55	19	100
1236	OUT[946]	-6849.5	315	19	100
1237	OUT[947]	-6868.5	185	19	100
1238	OUT[948]	-6887.5	55	19	100
1239	OUT[949]	-6906.5	315	19	100
1240	OUT[950]	-6925.5	185	19	100
1241	OUT[951]	-6944.5	55	19	100
1242	OUT[952]	-6963.5	315	19	100
1243	OUT[953]	-6982.5	185	19	100
1244	OUT[954]	-7001.5	55	19	100
1245	OUT[955]	-7020.5	315	19	100
1246	OUT[956]	-7039.5	185	19	100
1247	OUT[957]	-7058.5	55	19	100
1248	OUT[958]	-7077.5	315	19	100

1249	OUT[959]	-7096.5	185	19	100
1250	OUT[960]	-7115.5	55	19	100
1251	OUT[961]	-7134.5	315	19	100
1252	OUT[962]	-7153.5	185	19	100
1253	OUT[963]	-7172.5	55	19	100
1254	OUT[964]	-7191.5	315	19	100
1255	OUT[965]	-7210.5	185	19	100
1256	OUT[966]	-7229.5	55	19	100
1257	OUT[967]	-7248.5	315	19	100
1258	OUT[968]	-7267.5	185	19	100
1259	OUT[969]	-7286.5	55	19	100
1260	OUT[970]	-7305.5	315	19	100
1261	OUT[971]	-7324.5	185	19	100
1262	OUT[972]	-7343.5	55	19	100
1263	OUT[973]	-7362.5	315	19	100
1264	OUT[974]	-7381.5	185	19	100
1265	OUT[975]	-7400.5	55	19	100
1266	OUT[976]	-7419.5	315	19	100
1267	OUT[977]	-7438.5	185	19	100
1268	OUT[978]	-7457.5	55	19	100
1269	OUT[979]	-7476.5	315	19	100
1270	OUT[980]	-7495.5	185	19	100
1271	OUT[981]	-7514.5	55	19	100
1272	OUT[982]	-7533.5	315	19	100
1273	OUT[983]	-7552.5	185	19	100
1274	OUT[984]	-7571.5	55	19	100
1275	OUT[985]	-7590.5	315	19	100
1276	OUT[986]	-7609.5	185	19	100
1277	OUT[987]	-7628.5	55	19	100
1278	OUT[988]	-7647.5	315	19	100
1279	OUT[989]	-7666.5	185	19	100
1280	OUT[990]	-7685.5	55	19	100
1281	OUT[991]	-7704.5	315	19	100
1282	OUT[992]	-7723.5	185	19	100
1283	OUT[993]	-7742.5	55	19	100
1284	OUT[994]	-7761.5	315	19	100
1285	OUT[995]	-7780.5	185	19	100
1286	OUT[996]	-7799.5	55	19	100
1287	OUT[997]	-7818.5	315	19	100

1288	OUT[998]	-7837.5	185	19	100
1289	OUT[999]	-7856.5	55	19	100
1290	OUT[1000]	-7875.5	315	19	100
1291	OUT[1001]	-7894.5	185	19	100
1292	OUT[1002]	-7913.5	55	19	100
1293	OUT[1003]	-7932.5	315	19	100
1294	OUT[1004]	-7951.5	185	19	100
1295	OUT[1005]	-7970.5	55	19	100
1296	OUT[1006]	-7989.5	315	19	100
1297	OUT[1007]	-8008.5	185	19	100
1298	OUT[1008]	-8027.5	55	19	100
1299	OUT[1009]	-8046.5	315	19	100
1300	OUT[1010]	-8065.5	185	19	100
1301	OUT[1011]	-8084.5	55	19	100
1302	OUT[1012]	-8103.5	315	19	100
1303	OUT[1013]	-8122.5	185	19	100
1304	OUT[1014]	-8141.5	55	19	100
1305	OUT[1015]	-8160.5	315	19	100
1306	OUT[1016]	-8179.5	185	19	100
1307	OUT[1017]	-8198.5	55	19	100
1308	OUT[1018]	-8217.5	315	19	100
1309	OUT[1019]	-8236.5	185	19	100
1310	OUT[1020]	-8255.5	55	19	100
1311	OUT[1021]	-8274.5	315	19	100
1312	OUT[1022]	-8293.5	185	19	100
1313	OUT[1023]	-8312.5	55	19	100
1314	OUT[1024]	-8331.5	315	19	100
1315	OUT[1025]	-8350.5	185	19	100
1316	OUT[1026]	-8369.5	55	19	100
1317	OUT[1027]	-8388.5	315	19	100
1318	OUT[1028]	-8407.5	185	19	100
1319	OUT[1029]	-8426.5	55	19	100
1320	OUT[1030]	-8445.5	315	19	100
1321	OUT[1031]	-8464.5	185	19	100
1322	OUT[1032]	-8483.5	55	19	100
1323	OUT[1033]	-8502.5	315	19	100
1324	OUT[1034]	-8521.5	185	19	100
1325	OUT[1035]	-8540.5	55	19	100
1326	OUT[1036]	-8559.5	315	19	100

1327	OUT[1037]	-8578.5	185	19	100
1328	OUT[1038]	-8597.5	55	19	100
1329	OUT[1039]	-8616.5	315	19	100
1330	OUT[1040]	-8635.5	185	19	100
1331	OUT[1041]	-8654.5	55	19	100
1332	OUT[1042]	-8673.5	315	19	100
1333	OUT[1043]	-8692.5	185	19	100
1334	OUT[1044]	-8711.5	55	19	100
1335	OUT[1045]	-8730.5	315	19	100
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1337	OUT[1047]	-8768.5	55	19	100
1338	OUT[1048]	-8787.5	315	19	100
1339	OUT[1049]	-8806.5	185	19	100
1340	OUT[1050]	-8825.5	55	19	100
1341	OUT[1051]	-8844.5	315	19	100
1342	OUT[1052]	-8863.5	185	19	100
1343	OUT[1053]	-8882.5	55	19	100
1344	OUT[1054]	-8901.5	315	19	100
1345	OUT[1055]	-8920.5	185	19	100
1346	OUT[1056]	-8939.5	55	19	100
1347	OUT[1057]	-8958.5	315	19	100
1348	OUT[1058]	-8977.5	185	19	100
1349	OUT[1059]	-8996.5	55	19	100
1350	OUT[1060]	-9015.5	315	19	100
1351	OUT[1061]	-9034.5	185	19	100
1352	OUT[1062]	-9053.5	55	19	100
1353	OUT[1063]	-9072.5	315	19	100
1354	OUT[1064]	-9091.5	185	19	100
1355	OUT[1065]	-9110.5	55	19	100
1356	OUT[1066]	-9129.5	315	19	100
1357	OUT[1067]	-9148.5	185	19	100
1358	OUT[1068]	-9167.5	55	19	100
1359	OUT[1069]	-9186.5	315	19	100
1360	OUT[1070]	-9205.5	185	19	100
1361	OUT[1071]	-9224.5	55	19	100
1362	OUT[1072]	-9243.5	315	19	100
1363	OUT[1073]	-9262.5	185	19	100
1364	OUT[1074]	-9281.5	55	19	100
1365	OUT[1075]	-9300.5	315	19	100

1366	OUT[1076]	-9319.5	185	19	100
1367	OUT[1077]	-9338.5	55	19	100
1368	OUT[1078]	-9357.5	315	19	100
1369	OUT[1079]	-9376.5	185	19	100
1370	OUT[1080]	-9395.5	55	19	100
1371	OUT[1081]	-9414.5	315	19	100
1372	OUT[1082]	-9433.5	185	19	100
1373	OUT[1083]	-9452.5	55	19	100
1374	OUT[1084]	-9471.5	315	19	100
1375	OUT[1085]	-9490.5	185	19	100
1376	OUT[1086]	-9509.5	55	19	100
1377	OUT[1087]	-9528.5	315	19	100
1378	OUT[1088]	-9547.5	185	19	100
1379	OUT[1089]	-9566.5	55	19	100
1380	OUT[1090]	-9585.5	315	19	100
1381	OUT[1091]	-9604.5	185	19	100
1382	OUT[1092]	-9623.5	55	19	100
1383	OUT[1093]	-9642.5	315	19	100
1384	OUT[1094]	-9661.5	185	19	100
1385	OUT[1095]	-9680.5	55	19	100
1386	OUT[1096]	-9699.5	315	19	100
1387	OUT[1097]	-9718.5	185	19	100
1388	OUT[1098]	-9737.5	55	19	100
1389	OUT[1099]	-9756.5	315	19	100
1390	OUT[1100]	-9775.5	185	19	100
1391	OUT[1101]	-9794.5	55	19	100
1392	OUT[1102]	-9813.5	315	19	100
1393	OUT[1103]	-9832.5	185	19	100
1394	OUT[1104]	-9851.5	55	19	100
1395	OUT[1105]	-9870.5	315	19	100
1396	OUT[1106]	-9889.5	185	19	100
1397	OUT[1107]	-9908.5	55	19	100
1398	OUT[1108]	-9927.5	315	19	100
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1401	OUT[1111]	-9984.5	315	19	100
1402	OUT[1112]	-10003.5	185	19	100
1403	OUT[1113]	-10022.5	55	19	100
1404	OUT[1114]	-10041.5	315	19	100

1405	OUT[1115]	-10060.5	185	19	100
1406	OUT[1116]	-10079.5	55	19	100
1407	OUT[1117]	-10098.5	315	19	100
1408	OUT[1118]	-10117.5	185	19	100
1409	OUT[1119]	-10136.5	55	19	100
1410	OUT[1120]	-10155.5	315	19	100
1411	OUT[1121]	-10174.5	185	19	100
1412	OUT[1122]	-10193.5	55	19	100
1413	OUT[1123]	-10212.5	315	19	100
1414	OUT[1124]	-10231.5	185	19	100
1415	OUT[1125]	-10250.5	55	19	100
1416	OUT[1126]	-10269.5	315	19	100
1417	OUT[1127]	-10288.5	185	19	100
1418	OUT[1128]	-10307.5	55	19	100
1419	OUT[1129]	-10326.5	315	19	100
1420	OUT[1130]	-10345.5	185	19	100
1421	OUT[1131]	-10364.5	55	19	100
1422	OUT[1132]	-10383.5	315	19	100
1423	OUT[1133]	-10402.5	185	19	100
1424	OUT[1134]	-10421.5	55	19	100
1425	OUT[1135]	-10440.5	315	19	100
1426	OUT[1136]	-10459.5	185	19	100
1427	OUT[1137]	-10478.5	55	19	100
1428	OUT[1138]	-10497.5	315	19	100
1429	OUT[1139]	-10516.5	185	19	100
1430	OUT[1140]	-10535.5	55	19	100
1431	OUT[1141]	-10554.5	315	19	100
1432	OUT[1142]	-10573.5	185	19	100
1433	OUT[1143]	-10592.5	55	19	100
1434	OUT[1144]	-10611.5	315	19	100
1435	OUT[1145]	-10630.5	185	19	100
1436	OUT[1146]	-10649.5	55	19	100
1437	OUT[1147]	-10668.5	315	19	100
1438	OUT[1148]	-10687.5	185	19	100
1439	OUT[1149]	-10706.5	55	19	100
1440	OUT[1150]	-10725.5	315	19	100
1441	OUT[1151]	-10744.5	185	19	100
1442	OUT[1152]	-10763.5	55	19	100
1443	OUT[1153]	-10782.5	315	19	100

1444	OUT[1154]	-10801.5	185	19	100
1445	OUT[1155]	-10820.5	55	19	100
1446	OUT[1156]	-10839.5	315	19	100
1447	OUT[1157]	-10858.5	185	19	100
1448	OUT[1158]	-10877.5	55	19	100
1449	OUT[1159]	-10896.5	315	19	100
1450	OUT[1160]	-10915.5	185	19	100
1451	OUT[1161]	-10934.5	55	19	100
1452	OUT[1162]	-10953.5	315	19	100
1453	OUT[1163]	-10972.5	185	19	100
1454	OUT[1164]	-10991.5	55	19	100
1455	OUT[1165]	-11010.5	315	19	100
1456	OUT[1166]	-11029.5	185	19	100
1457	OUT[1167]	-11048.5	55	19	100
1458	OUT[1168]	-11067.5	315	19	100
1459	OUT[1169]	-11086.5	185	19	100
1460	OUT[1170]	-11105.5	55	19	100
1461	OUT[1171]	-11124.5	315	19	100
1462	OUT[1172]	-11143.5	185	19	100
1463	OUT[1173]	-11162.5	55	19	100
1464	OUT[1174]	-11181.5	315	19	100
1465	OUT[1175]	-11200.5	185	19	100
1466	OUT[1176]	-11219.5	55	19	100
1467	OUT[1177]	-11238.5	315	19	100
1468	OUT[1178]	-11257.5	185	19	100
1469	OUT[1179]	-11276.5	55	19	100
1470	OUT[1180]	-11295.5	315	19	100
1471	OUT[1181]	-11314.5	185	19	100

1472	OUT[1182]	-11333.5	55	19	100
1473	OUT[1183]	-11352.5	315	19	100
1474	OUT[1184]	-11371.5	185	19	100
1475	OUT[1185]	-11390.5	55	19	100
1476	OUT[1186]	-11409.5	315	19	100
1477	OUT[1187]	-11428.5	185	19	100
1478	OUT[1188]	-11447.5	55	19	100
1479	OUT[1189]	-11466.5	315	19	100
1480	OUT[1190]	-11485.5	185	19	100
1481	OUT[1191]	-11504.5	55	19	100
1482	OUT[1192]	-11523.5	315	19	100
1483	OUT[1193]	-11542.5	185	19	100
1484	OUT[1194]	-11561.5	55	19	100
1485	OUT[1195]	-11580.5	315	19	100
1486	OUT[1196]	-11599.5	185	19	100
1487	OUT[1197]	-11618.5	55	19	100
1488	OUT[1198]	-11637.5	315	19	100
1489	OUT[1199]	-11656.5	185	19	100
1490	OUT[1200]	-11675.5	55	19	100
1491	RPO1	-11717	315	22	100
1492	RPO1	-11761	315	22	100
1493	RPI1	-11805	315	22	100
1494	COM1_T	-11849	315	22	100
1495	COM1_T	-11893	315	22	100
1496	DUMMY[0]	-11937	315	22	100
1497	Alignment_left	-11888	-5	120	120
1498	Alignment_right	11888	-5	120	120

**Important Notice**

The Company shall make use of the Confidential Information solely for the Purpose. The Company is prohibited from using the Confidential Information other than the Purpose, including but not limited to the human life safety related to, such as Aviation navigation systems, Surgical instruments, Military equipments, Automotive Driver Safety Assistant System etc.

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