

BFX_UA300

LED driver IC design change proposal

AW21024/AW21036 LED driver IC

LED driver IC design proposal

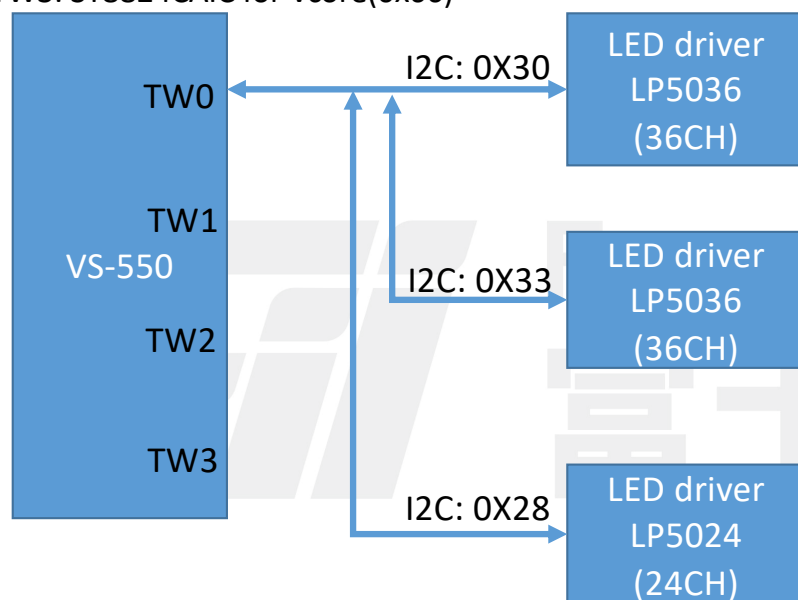
I2C Bus:

TW0: AMP/FFV MIC/A113X/LED

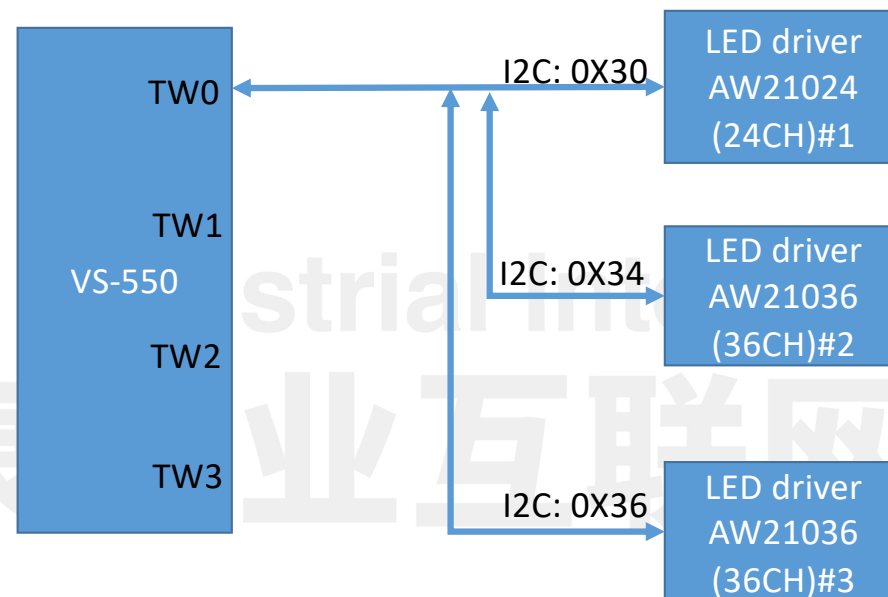
TW1: HDMI CDC

TW2: SY8824CAIC for Vcpu(0x66)

TW3: SY8824CAIC for Vcore(0x66)



Current design



Design Change

- I2C port of AW21024/AW21024 will use the same as original design on TW0 bus for LED driver.
- Will propose *1pcs AW21024 (24ch) and *2pcs AW21036(36ch) to replace *2 LP5036 (36ch) + *1 LP5024 (24ch) design.

DEVICE ADDRESS

The I²C device address is 7-bit (A7~A1), followed by a R/W bit A0 (Read=1/Write=0). Set A0 to "0" for writing and "1" for reading. The values of bit A1 and bit A2 are depended on the connection of pin AD, there are 4 options: VDD, GND, SCL and SDA. The A7 to A3 is "01110" constantly. The device also supports using a broadcast slave address of 1Ch to access registers. All slave addresses as followed.

AD PIN	A7:A3	A2:A1	A0	Device Address	Broadcast Address
GND	01101	00	0/1	34h	1Ch
VDD		01		35h	
SCL		10		36h	
SDA		11		37h	

I2C address table of AW21036

I2C address table of AW21024

DEVICE ADDRESS

The I²C device address is 7-bit (A7~A1), followed by a R/W bit A0 (Read=1/Write=0). Set A0 to "0" for writing and "1" for reading. The values of bit A1 and bit A2 are depended on the connection of pin AD0 and the values of [A4:A3] are depended on the connection of pin AD1, there are 4 options: VDD, GND, SCL and SDA for each AD. The A7 to A5 is "011" constantly. The device also supports using a broadcast slave address of 1Ch to access registers. All slave addresses as followed.

AD1	AD0	A7:A5	A4:A3	A2:A1	A0	Device Address	Broadcast Address
GND	GND	011	00	00	0/1	30h	1Ch
GND	VDD		00	01		31h	
GND	SCL		00	10		32h	
GND	SDA		00	11		33h	
VDD	GND		01	00		34h	
VDD	VDD		01	01		35h	
VDD	SCL		01	10		36h	
VDD	SDA		01	11		37h	
SCL	GND		10	00		38h	
SCL	VDD		10	01		39h	
SCL	SCL		10	10		3ah	
SCL	SDA		10	11		3bh	
SDA	GND		11	00		3ch	
SDA	VDD		11	01		3dh	
SDA	SCL		11	10		3eh	
SDA	SDA		11	11		3fh	

Design Impact(AW21024)

HW impact:

1. Need to re-design LED group and re-layout.
2. The EMC & certification need to be verified again.
3. Driver IC vendor is not FXN QVL, it may need to ALT consign part.

SW impact:

1. Need to modify LED drivers for compatibility for both old and new LED design.
2. Need to modify LED HAL for LED position remapping and support both old and new LED design.
3. Need add LED commands for manufacturing.
4. Fine Tune LED behavior and Color if new design has some differences as old design.

Development Schedule Estimation

	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	WK12
HW	SCH Design	SCH Design & Layout	Layout & Rework	PCB fabricate	PCB fabricate	PCB fabricate	Sample 1 build	Sample delivery & HW Test	HW test	HW & EMC test	SCH Design	SCH Design & Layout
SW							Coding	Coding	Coding	Coding	Coding	Coding
QA												
ALT												
	WK13	WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24
HW	Layout	PCB fabricate	PCB fabricate	PCB fabricate	Sample 2 build	Sample delivery & HW Test	HW test	HW & EMC test				
SW	LED Tuning	LED Tuning	LED Tuning	LED Tuning	LED Tuning	LED Tuning						
QA							Reliability Test	Reliability Test	Reliability Test			
ALT	LED Tuning	LED Tuning	LED Tuning									

- Need total 21 weeks for 2 builds for engineering development and HW, S/W, QA validation

HWQA reliability test plan & schedule

SWAN LED Driver Reliability Test Schedule Rev: 2.0																								
Climatic Test																								
No	Test Items	Q'ty	L/T	DVT	Test Location	Status	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
1	Cold Start Test	2	3	V	HC																			
2	Hot Start Test	re-use item 1	3	V	HC																			
3	High Temperature & Humidity Test (Op)	re-use item 2	4	V	HC																			
4	Thermal shock (PCB only)	re-use item 3	2	V	HC																			
5	Power On/Off with Temperature	re-use item 4	5	V	HC																			



Microsoft Excel
工作表

Reliability test plan

AW21024/AW21036 datasheet



AW21024



AW21036



Foxconn Industrial Internet
富士康工业互联网