Category	ADDR	Description
Broadcast	FF	Broadcast to All Devices
Broadcast Group	FE	Broadcast to Devices in Group
Broadcast Group	FD	Broadcast to Devices in Group
Broadcast Group	FC	Broadcast to Devices in Group
Broadcast Group	FB	Broadcast to Devices in Group
Broadcast Group	FA	Broadcast to Devices in Group
Broadcast Group	F9	Broadcast to Devices in Group
Broadcast Group	F8	Broadcast to Devices in Group
Broadcast Group	F7	Broadcast to Devices in Group
Broadcast Group	F6	Broadcast to Devices in Group
Broadcast Group	F5	Broadcast to Devices in Group
Broadcast Group	F4	Broadcast to Devices in Group
Broadcast Group	F3	Broadcast to Devices in Group
Broadcast Group	F2	Broadcast to Devices in Group
Broadcast Group	F1	Broadcast to Devices in Group
Broadcast Group Default	F0	Default broadcast group if device has not been configured
Unicast	EF	Unicast to Device
Unicast	…	Unicast to Device
Unicast	02	Unicast to Device
Unicast Default	01	Default unicast address if device has not been configured
None	00	No receipient

ADDR ALLOCATED

ADDR	Group	Device	Comment
E1	00	Kha-gateway-usb	Connected to machariel.qnet
E0	00	Kha-gateway-usb	Connected to blacksheep.qnet
C5	F4	kha-relay-2x3-node	North
C4	F4	kha-relay-2x3-node	South
C3	F1	Kha-led-ikea-node	East Oxberg
C2	F1	Kha-led-ikea-node	North Kallax
C1	F1	Kha-led-ikea-node	West Oxberg
C0	F1	Kha-led-ikea-node	South Kallax
BB	00	Kha-bgt-preset	
BA	00	Kha-bgt-rainbow	
B9	00	Kha-bgt-hsi	
B8	00	Kha-bgt-kaox	
B7	00	Kha-bgt-guru	
B6	00	Kha-bgt-dark	
B5	F3	Kha-bgt-power	Misc
B4	F3	Kha-bgt-power	Projects
B3	F3	Kha-bgt-power	Lights
B2	F2	Kha-bgt-audio	Audio Out
B1	F2	Kha-bgt-audio	Audio In
B0	00	Kha-bgt-main	

Board	Type
All	FF
Kha-bgt-rainbow	A8
Kha-bgt-preset	A7
Kha-bgt-main	A6
Kha-bgt-kaox	A5
Kha-bgt-hsi	A4
Kha-bgt-guru	A3
Kha-bgt-dark	A2
kha-bgt-power	A1
kha-bgt-audio	A0
kha-relay-2x3-node	04
kha-gateway-usb	03
Kha-led-ikea-node	02
Board Default	01
None	00

Category	CMD	Opt Len	Payload	Type	Description
Management	FF	0 / 2	- or <1: board type> <1: board rev>	Command	Reboot Device, optionally only matching specific hardware
Management	FE	0	-	Reply	Bootloader: Command error
Management	FD	2	<1: board type> <1: board rev>	Command	Bootloader: Do not exit
Management	FC	2	<1: board type> <1: board rev>	Command	Bootloader: Wipe FLASH
Management	FB	2	<1: board type> <1: board rev>	Command	Bootloader: Wipe EEPROM
Management	FA	67	<1: board type> <1: board rev> <1: part 0-7> <64: data>	Command	Bootloader: Firmware data
Management	F9	3	<1: board type> <1: board rev> <1: page>	Command	Bootloader: Firmware write
Reserved	F8	Reserved			
Reserved	F7	Reserved			
Reserved	F6	Reserved			
Reserved	F5	Reserved			
Reserved	F4	Reserved			
Reserved	F3	Reserved			
Reserved	F2	Reserved			
Management	F1	0	-	Command	TX Enable
Management	F0	0	-	Command	TX Disable
Reserved	EF	Reserved			
Reserved	EE	Reserved			
Device	ED	1	<1: preset>	Command	Preset
Device	EC	0	-	Command	UI Enable
Device	EB	0	-	Command	UI Disable
Device	EA	0	-	Command	Debug Enable
Device	E9	0	-	Command	Debug Disable
Device	E8	1-MAX	<data>	Broadcast	Debug Message
Device	E7	0	-	Command	Stats Clear
Device	E6	9	<9: stats>	Reply	Stats Response
Device	E5	0	-	Command	Stats Request
Device	E4	0	-	Reply	Pong
Device	E3	0	-	Command	Ping
Device	E2	20	<1: board type> <1: board rev> <1: device group> <1: 0=boot, 1=app> <4: boot version> <4: boot crc> <4: app version> <4:app crc>	Broadcast	Up
Device	E1	20	<1: board type> <1: board rev> <1: device group> <1: 0=boot, 1=app> <4: boot version> <4: boot crc> <4: app version> <4:app crc>	Reply	Ident Response
Device	E0	0	-	Command	Ident Request
Register	DF	0	-	Command	Wipe configuration in memory
Register	DE	0	-	Command	Store configuration to EEPROM
Register	DD	0	-	Command	Load configuration from EEPROM
Reserved	DC	Reserved			
Reserved	DB	Reserved			
Reserved	DA	Reserved			
Reserved	D9	Reserved			
Register	E8	1	<1: addr>	Reply	Write Fail
Register	D7	1	<1: addr>	Reply	Write Success
Register	D6	2-MAX	<1: addr> <data>	Command	Write <data> bytes to address <addr>, don't reply
Register	D5	2-MAX	<1: addr> <data>	Command	Write <data> bytes to address <addr>
Reserved	D4	Reserved			
Reserved	D3	Reserved			
Reserved	D2	Reserved			
Register	D1	1-MAX	<1:addr> <data, empty if failed>	Reply	Read Reply <data> bytes from address <addr> or empty if failed
Register	D0	2	<1: addr> <1: len>	Command	Read <len> bytes from address <addr>
Reserved	CF	Reserved			
Reserved	CE	Reserved			
Reserved	CD	Reserved			
Reserved	CC	Reserved			
Reserved	CB	Reserved			
Device	CA	Reserved			
Device	C9	Reserved			
Device	C8	Reserved			
Device	C7	Reserved			

Device	C6	Reserved			
Device	C5	Reserved			
Device	C4	Reserved			
Device	C3	Reserved			
Device	C2	Reserved			
Device	C1	Reserved			
Device	C0	Reserved			
Vendor	BF	Reserved			
Vendor	BE	Reserved			
Vendor	BD	Reserved			
System	BC	Reserved			
	BB	Reserved			
	BA	Reserved			
	B9	Reserved			
	B8	Reserved			
	B7	Reserved			
	B6	Reserved			
	B5	Reserved			
	B4	Reserved			
	B3	Reserved			
	B2	Reserved			
	B1	Reserved			
	B0	Reserved			
	AF	Reserved			
	AE	Reserved			
	AD	Reserved			
	AC	Reserved			
	AB	Reserved			
	AA	Reserved			
	A9	Reserved			
	A8	Reserved			
	A7	Reserved			
	A6	Reserved			
	A5	Reserved			
	A4	Reserved			
	A3	Reserved			
	A2	Reserved			
	A1	Reserved			
	A0	Reserved			
	9F	?	?	?	Vendor Specific
	…	?	?	?	Vendor Specific
	01	?	?	?	Vendor Specific
	00	0	-	Command	NOP

REGISTER

Module	Type	ADDR	Function	Values
Kha-bgt-audio	Device	00	Select audio source/destination	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Device	01	Bluetooth connection trigger	1=trigger once
Kha-bgt-audio	Device	02	Select power-on audio source/destination	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	03	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	04	Preset 0 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	05	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	06	Preset 1 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	07	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	08	Preset 2 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	09	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	0A	Preset 3 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	0B	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	0C	Preset 4 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	0D	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	0E	Preset 5 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	0F	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	10	Preset 6 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	11	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	12	Preset 7 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	13	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	14	Preset 8 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	15	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	16	Preset 9 mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	17	Preset A enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	18	Preset A mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	19	Preset B enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	1A	Preset B mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	1B	Preset C enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	1C	Preset C mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	1D	Preset D enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	1E	Preset D mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-audio	Preset	1F	Preset E enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	20	Preset E mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD

Kha-bgt-audio	Preset	**21**	Preset F enabled	0 = Off, 1= On
Kha-bgt-audio	Preset	**22**	Preset F mode	0=AUXA, 1=AUXB, 2=AUXC, 3=AUXD
Kha-bgt-dark	Preset	**00**	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**01**	Preset 0 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**02**	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**03**	Preset 1 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**04**	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**05**	Preset 2 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**06**	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**07**	Preset 3 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**08**	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**09**	Preset 4 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**0A**	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**0B**	Preset 5 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**0C**	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**0D**	Preset 6 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**0E**	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**0F**	Preset 7 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**10**	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**11**	Preset 8 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**12**	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**13**	Preset 9 mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**14**	Preset A enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**15**	Preset A mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**16**	Preset B enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**17**	Preset B mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**18**	Preset C enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**19**	Preset C mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**1A**	Preset D enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**1B**	Preset D mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**1C**	Preset E enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**1D**	Preset E mode	0=Send Off, 1=Send On
Kha-bgt-dark	Preset	**1E**	Preset F enabled	0 = Off, 1= On
Kha-bgt-dark	Preset	**1F**	Preset F mode	0=Send Off, 1=Send On

Kha-bgt-guru	Device	00	Send to device id	0x00-0xFF
Kha-bgt-guru	Device	01	Stats request interval	0x01-0xFF (min) | 0x00 = Off
Kha-bgt-hsi	Device	00	Send to device id	0x00-0xFE
Kha-bgt-hsi	Preset	01	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	02	Preset 0 hue	0x00-0xFF
Kha-bgt-hsi	Preset	03	Preset 0 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	04	Preset 0 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	05	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	06	Preset 1 hue	0x00-0xFF
Kha-bgt-hsi	Preset	07	Preset 1 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	08	Preset 1 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	09	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	0A	Preset 2 hue	0x00-0xFF
Kha-bgt-hsi	Preset	0B	Preset 2 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	0C	Preset 2 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	0D	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	0E	Preset 3 hue	0x00-0xFF
Kha-bgt-hsi	Preset	0F	Preset 3 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	10	Preset 3 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	11	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	12	Preset 4 hue	0x00-0xFF
Kha-bgt-hsi	Preset	13	Preset 4 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	14	Preset 4 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	15	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	16	Preset 5 hue	0x00-0xFF
Kha-bgt-hsi	Preset	17	Preset 5 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	18	Preset 5 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	19	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	1A	Preset 6 hue	0x00-0xFF
Kha-bgt-hsi	Preset	1B	Preset 6 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	1C	Preset 6 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	1D	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	1E	Preset 7 hue	0x00-0xFF
Kha-bgt-hsi	Preset	1F	Preset 7 saturation	0x00-0xFF

Kha-bgt-hsi	Preset	**20**	Preset 7 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**00**	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**00**	Preset 8 hue	0x00-0xFF
Kha-bgt-hsi	Preset	**01**	Preset 8 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**02**	Preset 8 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**03**	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**04**	Preset 9 hue	0x00-0xFF
Kha-bgt-hsi	Preset	**05**	Preset 9 saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**06**	Preset 9 intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**07**	Preset A enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**08**	Preset A hue	0x00-0xFF
Kha-bgt-hsi	Preset	**09**	Preset A saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**0A**	Preset A intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**0B**	Preset B enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**0C**	Preset B hue	0x00-0xFF
Kha-bgt-hsi	Preset	**0D**	Preset B saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**0E**	Preset B intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**0F**	Preset C enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**10**	Preset C hue	0x00-0xFF
Kha-bgt-hsi	Preset	**11**	Preset C saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**12**	Preset C intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**13**	Preset D enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**14**	Preset D hue	0x00-0xFF
Kha-bgt-hsi	Preset	**15**	Preset D saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**16**	Preset D intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**17**	Preset E enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**18**	Preset E hue	0x00-0xFF
Kha-bgt-hsi	Preset	**19**	Preset E saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**1A**	Preset E intensity	0x00-0xFF
Kha-bgt-hsi	Preset	**1B**	Preset F enabled	0 = Off, 1= On
Kha-bgt-hsi	Preset	**1C**	Preset F hue	0x00-0xFF
Kha-bgt-hsi	Preset	**1D**	Preset F saturation	0x00-0xFF
Kha-bgt-hsi	Preset	**1E**	Preset F intensity	0x00-0xFF
Kha-bgt-kaox	Device	**00**	Send to device id	0x00-0xFE

Kha-bgt-kaox	Preset	**01**	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**02**	Preset 0 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**03**	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**04**	Preset 1 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**05**	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**06**	Preset 2 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**07**	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**08**	Preset 3 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**09**	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**0A**	Preset 4 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**0B**	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**0C**	Preset 5 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**0D**	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**0E**	Preset 6 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**0F**	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**10**	Preset 7 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**11**	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**12**	Preset 8 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**13**	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**14**	Preset 9 mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**15**	Preset A enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**16**	Preset A mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**17**	Preset B enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**18**	Preset B mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**19**	Preset C enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**1A**	Preset C mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**1B**	Preset D enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**1C**	Preset D mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**1D**	Preset E enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**1E**	Preset E mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-kaox	Preset	**1F**	Preset F enabled	0 = Off, 1= On
Kha-bgt-kaox	Preset	**20**	Preset F mode	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-bgt-main	Device	**00**	Shutdown time out	0x00-0xFF (sec)
Kha-bgt-power	Device	**00**	Button 0 node dev id	0x01-0xEF | Off

Kha-bgt-power	Device	01	Button 0 node reg addr	0x00-0xEE | Off
Kha-bgt-power	Device	02	Button 1 node dev id	0x01-0xEF | Off
Kha-bgt-power	Device	03	Button 1 node reg addr	0x00-0xEE | Off
Kha-bgt-power	Device	04	Button 2 node dev id	0x01-0xEF | Off
Kha-bgt-power	Device	05	Button 2 node reg addr	0x00-0xEE | Off
Kha-bgt-power	Device	06	Button 3 node dev id	0x01-0xEF | Off
Kha-bgt-power	Device	07	Button 3 node reg addr	0x00-0xEE | Off
Kha-bgt-power	Preset	08	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	09	Preset 0 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	0A	Preset 0 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	0B	Preset 0 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	0C	Preset 0 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	0D	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	0E	Preset 1 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	0F	Preset 1 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	10	Preset 1 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	11	Preset 1 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	12	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	13	Preset 2 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	14	Preset 2 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	15	Preset 2 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	16	Preset 2 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	17	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	18	Preset 3 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	19	Preset 3 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	1A	Preset 3 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	1B	Preset 3 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	1C	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	1D	Preset 4 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	1E	Preset 4 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	1F	Preset 4 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	20	Preset 4 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	21	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	22	Preset 5 Button 0	0=Off, 1=On, 2=Unchanged

Kha-bgt-power	Preset	**23**	Preset 5 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**24**	Preset 5 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**25**	Preset 5 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**26**	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**27**	Preset 6 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**28**	Preset 6 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**29**	Preset 6 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**2A**	Preset 6 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**2B**	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**2C**	Preset 7 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**2D**	Preset 7 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**2E**	Preset 7 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**2F**	Preset 7 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**30**	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**31**	Preset 8 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**32**	Preset 8 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**33**	Preset 8 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**34**	Preset 8 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**35**	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**36**	Preset 9 Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**37**	Preset 9 Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**38**	Preset 9 Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**39**	Preset 9 Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**3A**	Preset A enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**3B**	Preset A Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**3C**	Preset A Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**3D**	Preset A Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**3E**	Preset A Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**3F**	Preset B enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**40**	Preset B Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**41**	Preset B Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**42**	Preset B Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**43**	Preset B Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**44**	Preset C enabled	0 = Off, 1= On

Kha-bgt-power	Preset	**45**	Preset C Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**46**	Preset C Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**47**	Preset C Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**48**	Preset C Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**49**	Preset D enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**4A**	Preset D Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**4B**	Preset D Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**4C**	Preset D Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**4D**	Preset D Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**4E**	Preset E enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**4F**	Preset E Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**50**	Preset E Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**51**	Preset E Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**52**	Preset E Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**53**	Preset F enabled	0 = Off, 1= On
Kha-bgt-power	Preset	**54**	Preset F Button 0	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**55**	Preset F Button 1	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**56**	Preset F Button 2	0=Off, 1=On, 2=Unchanged
Kha-bgt-power	Preset	**57**	Preset F Button 3	0=Off, 1=On, 2=Unchanged
Kha-bgt-preset	Device	**00**	Button 0 preset code	0x00-0x0F | 0xFF
Kha-bgt-preset	Device	**01**	Button 1 preset code	0x00-0x0F | 0xFF
Kha-bgt-preset	Device	**02**	Button 2 preset code	0x00-0x0F | 0xFF
Kha-bgt-preset	Device	**03**	Button 3 preset code	0x00-0x0F | 0xFF
Kha-bgt-rainbow	Device	**00**	Send to device id	0x00-0xFE
Kha-bgt-rainbow	Preset	**01**	Preset 0 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**02**	Preset 0 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**03**	Preset 0 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**04**	Preset 0 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**05**	Preset 1 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**06**	Preset 1 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**07**	Preset 1 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**08**	Preset 1 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**09**	Preset 2 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**0A**	Preset 2 anim speed	0x00-0xFF

Kha-bgt-rainbow	Preset	**0B**	Preset 2 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**0C**	Preset 2 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**0D**	Preset 3 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**0E**	Preset 3 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**0F**	Preset 3 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**10**	Preset 3 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**11**	Preset 4 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**12**	Preset 4 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**13**	Preset 4 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**14**	Preset 4 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**15**	Preset 5 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**16**	Preset 5 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**17**	Preset 5 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**18**	Preset 5 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**19**	Preset 6 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**1A**	Preset 6 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**1B**	Preset 6 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**1C**	Preset 6 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**1D**	Preset 7 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**1E**	Preset 7 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**1F**	Preset 7 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**20**	Preset 7 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**21**	Preset 8 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**22**	Preset 8 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**23**	Preset 8 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**24**	Preset 8 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**25**	Preset 9 enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**26**	Preset 9 anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**27**	Preset 9 anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**28**	Preset 9 anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**29**	Preset A enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	**2A**	Preset A anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	**2B**	Preset A anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	**2C**	Preset A anim enabled	0 = Off, 1= On

Kha-bgt-rainbow	Preset	2D	Preset B enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	2E	Preset B anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	2F	Preset B anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	30	Preset B anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	31	Preset C enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	32	Preset C anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	33	Preset C anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	34	Preset C anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	35	Preset D enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	36	Preset D anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	37	Preset D anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	38	Preset D anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	39	Preset E enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	3A	Preset E anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	3B	Preset E anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	3C	Preset E anim enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	3D	Preset F enabled	0 = Off, 1= On
Kha-bgt-rainbow	Preset	3E	Preset F anim speed	0x00-0xFF
Kha-bgt-rainbow	Preset	3F	Preset F anim width	0x00-0xFF
Kha-bgt-rainbow	Preset	40	Preset F anim enabled	0 = Off, 1= On
Kha-gateway-usb	Device	00	Print Proto	0=Off, 1=On
Kha-gateway-usb	Device	01	Print Human	0=Off, 1=On
Kha-led-ikea-node	Device	00	LED Selection	0=Off, 1=Low, 2=Gradient, 3=Full
Kha-led-ikea-node	Device	01	LED Hue	0x00-0xFF
Kha-led-ikea-node	Device	02	LED Saturation	0x00-0xFF
Kha-led-ikea-node	Device	03	LED Intensity	0x00-0xFF
Kha-led-ikea-node	Device	04	Animation enabled	0=Off, 1=On
Kha-led-ikea-node	Device	05	Animation speed	0x00-0xFF
Kha-led-ikea-node	Device	06	Animation width	0x00-0xFF
Kha-led-ikea-node	Device	07	Show Identification	1=trigger once
Kha-led-ikea-node	Device	08	LED Amount	0x00-0xFF
Kha-led-ikea-node	Device	09	LED Orientation	0 = None, 1 = Vertical, 2 = Horizontal
Kha-led-ikea-node	Device	0A	LED Low Cut	0x00-0xFF
Kha-led-ikea-node	Device	0B	Animation Location	0x00-0xFF

REGISTER

kha-relay-2x3-node	Device	**00**	Socket 0 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**01**	Socket 1 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**02**	Socket 2 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**03**	Socket 3 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**04**	Socket 4 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**05**	Socket 5 enabled	0=Off, 1=On
kha-relay-2x3-node	Device	**06**	Socket 0 power-off timer	0x01-0xFF (min) | 0x00 = Off
kha-relay-2x3-node	Device	**07**	Socket 1 power-off timer	0x01-0xFF (min) | 0x00 = Off
kha-relay-2x3-node	Device	**08**	Socket 2 power-off timer	0x01-0xFF (min) | 0x00 = Off
kha-relay-2x3-node	Device	**09**	Socket 3 power-off timer	0x01-0xFF (min) | 0x00 = Off
kha-relay-2x3-node	Device	**0A**	Socket 4 power-off timer	0x01-0xFF (min) | 0x00 = Off
kha-relay-2x3-node	Device	**0B**	Socket 5 power-off timer	0x01-0xFF (min) | 0x00 = Off

Module	Commands	
Kha-bgt-audio	F2DF	Wipe
	B1D5030100010001000100010001000100	IN: Always PC
	B2D5030100010001010010001000100	OUT: Party Soundbar
	F2DE	Save
Kha-bgt-dark	B6DF	Wipe
	B6D5000100	Preset 0 off: Off
	B6D5060100	Preset 3 TV: Low
	B6DE	Save
Kha-bgt-guru	B7DF	Wipe
	B7D500FF	Broadcast to FF
	B7D5010A	Broadcast every 10 minutes
	B7DE	Save
Kha-bgt-hsi	B9DF	Wipe
	B9D500F1	Send to F1
	B9D505010000FF	Preset 1 shutdown: no saturation, full intensity
	B9D5090100FFFF	Preset 2 party: full saturation, full intensity
	B9D50D010000FF	Preset 3 tv: no saturation, full intensity
	B9DE	Save
Kha-bgt-kaox	B8DF	Wipe
	B8D500F1	Send to F1
	B8D5010100	Preset 0 off: Off
	B8D5030101	Preset 1 shutdown: Low
	B8D5050103	Preset 2 party: Full
	B8D5070101	Preset 3 TV: Low
	B8DE	Save
Kha-bgt-main	B0DF	Wipe
	B0D50096	Timeout 150sec for shutdown
	B0DE	Save
Kha-bgt-power	F3DF	
	F3DE	

REGISTER SETUP

Kha-bgt-preset	BBDF	Wipe
	BBD50002030405	Set presets to party, tv, tinker, pc
	BBDE	Save
Kha-bgt-rainbow	BADF	Wipe
	BAD500F1	Send to F1
	BAD50101000000	
	BAD50501000000	
	BAD50901002001	
	BAD50D01000000	
	BAD51101000000	
	BAD51501000000	
	BADE	Save
Kha-gateway-usb	E0DF	Wipe
	E0D5000100	Print Proto
	E0DE	Save
	E1DF	Wipe
	E1D5000001	Print Human
	E1DE	Save
Kha-led-ikea-node	F1DF	Wipe
	C0D500000000FF	Set Intensity to Max
	C0D50802020200	Set Amount, Orientation, Low Cut, Location
	C1D500000000FF	Set Intensity to Max
	C1D50808010302	Set Amount, Orientation, Low Cut, Location
	C2D500000000FF	Set Intensity to Max
	C2D50802020203	Set Amount, Orientation, Low Cut, Location
	C3D500000000FF	Set Intensity to Max
	C3D50808010305	Set Amount, Orientation, Low Cut, Location
	F1DE	Save
kha-relay-2x3-node	F4DF	Wipe
	C4D5	
	C5D5	
	F4DE	Save

NVM	NVM	Generate Flash APIs
NVM	NVM	Generate EEPROM APIs
NVM	NVM	Generate Signature Row APIs
Timer	Delay	
Timer	RTC	PIT Enable
Timer	RTC	RTC Clock Cycles 8
Timer	RTC	Periodic Interrupt Enable
UART	UART0	500000
UART	UART0	Interrupt Driven
UART	UART0	128 / 512
System	CLKCTRL	24Mhz
System	Configuration Bits	Bootsize 32
System	Configuration Bits	Device used in single supply configuration
System	Configuration Bits	Watchdog Timeout Period 4k / 4s
System	Interrupt Manager	RXC
System	Interrupt Manager	RSX
System	Pins	PA 0,1,3 USART0
System	RSTCTRL	Software Reset Enable
System	WDT	Lock

Building: Execute before build: ..\..\..\tools\kha-timestamp\kha-timestamp.bat
GCC Optimize -s
avr-ld: Additional: -Ttext=0x4000
add kha_version.h

Node	ID	Box Label	Box Color	Connected
C4	0	1	Green	Light Couch
C4	1	2	Green	LED Marquee
C4	2	3	Green	NFL
C4	3	1	Gray	Floppy
C4	4	2	Gray	Projects
C4	5	3	Gray	-
C5	0	1	Yellow	Light PC
C5	1	2	Yellow	Light Bench
C5	2	3	Yellow	-
C5	3	1	Red	Printer
C5	4	2	Red	Label Printer
C5	5	3	Red	Lab Power Supply