

# Set a SAPPHIRE BBG Network Address Using the DIP Switches

Configuration of a unit is done via a 1GbE Ethernet connection using the RJ45 connector. This is an out-of-band port, there is no media traffic in/out of this connection. This port is referred to as the "control port" in this document.

There is a six-position DIP switch (Dual In-line Package switch) on the exterior of the unit.

• Single (1) and dual (2) path unit DIP switches SW1 and SW2 force the IP Address. These units have limited space on the outer shell, so no label has been placed for DIP switch positions.

SW1	SW2	IP Address
OFF	OFF	User setting
OFF	ON	Force to DHCP (Dynamic Host Configuration Protocol), override user setting
ON	OFF	Force to 192.168.2.1
ON	ON	Force to 10.1.2.1



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Quad (4) path unit DIP switches SW3 and SW4 force the IP Address.
 The larger size of these units allows space for a label describing DIP Switch positions.



SW3	SW4	IP Address
OFF	OFF	User setting
OFF	ON	Force to DHCP (Dynamic Host Configuration Protocol), override user setting
ON	OFF	Force to 192.168.2.1
ON	ON	Force to 10.1.2.1

The DashBoard<sup>™</sup> software application is required for initial configuration of the unit and also serves as the UI for control/status. It is available for Windows/Linux/macOS here <u>https://www.opengear.tv/</u><u>frame-and-control/control-system/download/</u>.

	New TCP/IP DashBoard Connect/openGear Device ×
TCP/IP Dash This wizard a openGear De	Board Connect/openGear Device Ilows you to create a connection to a DashBoard Connect or vice through TCP/IP. The wizard should be used when your device is
IP Address:	10.99.11.173 Detect Frame Information
	Automatically track updates to frame information
Display Name	Cobalt JPEG-XS Demo
Protocol:	⊙ OGP ⊖ JSON
Port:	5253
	Remember connection settings for this frame
	Creat Friday
	Cancel Finish

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Once you have network connectivity via the control port you will need to add the device to DashBoard<sup>™</sup>. This is done under File >> New >> TCP/IP DashBoard Connect or openGear® Device. Type in the "IP Address" and "Display Name" fields and leave the other fields at their defaults as shown below, then click "Finish"

You should then see the unit appear in the tree view on the left side of DashBoard as follows:



Double-click on the "Slot 0: Sapphire BBG-2110" item above and you will see the UI for the unit appear in the right-side of DashBoard. This UI will be used for initial configuration and status monitoring. It can be used for control as well, for example you can manually subscribe to media streams, or that can be done via NMOS.

OPTIONAL: At this point you can optionally set a different IP address for the control port. This is done on the "Sapphire BBG-2110 Control" subtab of the "Network" tab, as shown below. Once you have made changes via this tab, restore SW1 and SW2 of the external DIP to 00 to disable override of user settings for the control port. If you change the IP address of the control port, you will need to re-add the unit to DashBoard using the previous steps.



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Now you have control of the unit.

Here are the steps to configure it for media:

1. Go to the "SFP 1" and "SFP 2" subtabs of the "Network" tab and configure the link rate and IP address settings for your media network. The "Link Status" field provides real-time indication of link status, and there are additional network statistics on the left side of DashBoard:

Cohait (PDC-00	S Demo - Slet 0 - Sepphire BBG-2310-2H									
Slot & Sapphire B	IBG-2110-2H	1	JPEO 485 SCabus		tu s	Logging	512110 5	2110 Settings		
Card state: 😑 C	ĸ		<b>BRG</b>	Presets		ACRU Settings	ACRU	Status		
Connection: Co	tlt.5		PTP	\$124.0	0 in	NMOS Settings	Network	Admin		
Develore Matsocie Devel Waters										
	Supphire BBG-2110-2H Control									
Link Status	🌻 Link			Link Onten						
P Address	10.66.33.179			Address						
MAC Address	e4:5503.83.5d:20		MAG	ur addisses	lac as to					
36.223.03	546 J		108000	Link Pate	Auto					
Link Status	Unk Status 🥚 Leik 230 FS-FEC (Rate (Obtin) 😑 0.3157		P Addre	re sa Mode		A num num				
RK Rate (Oben)					0 24					
TK Rabe (Obien)	💭 0.0000		Staric P	Address		10.1.1.100				
m Address	10.3.3.100		Sabi	briet Mask		255.255.295.0				
NAC Address	ac 592-90 (15:00:04		Default	Get every		0.0.0.0				
10000	SFP 2									
Link Status	😑 Link 250 FS-FEC									
RK Rabe (Obeni)	0.3167									
TX Mate Toblys)	0.0000									
P Address	10.1.3.100									
MAC Address	pc statio 15:00:05									
Sanohire aug		Sanoh	ire nurse	2010-06-	Control NER 3	800.2				
subbanc coo			Cable							



2. The default PTP domain used by the unit is 127. This can be changed and PTP status can be viewed on the PTP tab:

ртр	ST2110 In N	MOS SI	ettings	Net	twork	Admin	BBG Presets
	Domoio		177				
	Doman		127	-			
	Primary PTP Interface	SFP 1		-			
PTP LO	ock Hold (seconds, 0 = off)		1200	•			
					PTP Sta	tus	
	Grand Master Identity	ec4670	.fffe.0aald	8			1
	Status	Grandr	haster Pres	ent			
Grand Ma	ster Offset (nanoseconds)	41					
	Mean Path Delay	878					
	UTC Offset	37					
	PTP Packets	600D					
	PTP System Lock	Locked					
	Active Interface	SFP 1					
	SFP 1	Event:	8 pps,	General:	22 pps,	Total:	24B41 packets
	SEP 2	Event:	9 pps.	General:	15 pps.	Total:	2675 packets

 NMOS can be used for either the control port or either of the SFPs. To use NMOS, go to the "NMOS" tab, select the network interface to use, and change the "NMOS Mode" to "Enabled". To use the control port change the "NMOS Interface" control to "Out-of-Band"

PTP	ST2110 in	NHOS Settings	Network	Admin	BDG PT					
NELOC CIANA	Russian .									
New US STRELIE	earning									
NMOS Made	🔘 Disebled 💽	🔘 Disabled 💽 Enabled								
NMOS Interface	Out-of-Band +									
	Registration Discovery									
	Static RDG Setup 💿 Auto Discover RDG									
P Address	0.0.0.0									
PORT										
Version	nul									
	Arche Isonstration Suttorns									
	Carcel									
	DNIS-50									
Unicast	felse 🖲 tru	e .								
Multicent	tehe itt									
	Apply DNS-SO	Settings								



4. To manually subscribe to a ST 2110 stream, go to the "ST 2110 In" tab and set the "Essence Select" to "Video". An example configuration is:

Essence Select	💽 Video 👘 Audio 🦳 Audio Router 💭 Anc
	Video
Video Essence	🔘 Disabled 💽 Enabled
	Multicast IP Settinos
SFP 1	
Link	🔘 Disabled 💽 Brabled
Multicast Address	239.27.33.120
UDP Port	5500 💠
Source	Any Specific
SFP 2	
Link	🔘 Disabled 💿 Enabled
Hubicast Address	239.27.33.220
UOP Port	5500 \$
Source	💽 Any 🔘 Specific
Path Flow	Oisebled  Enekled
Staged Status	Sime .

5. To manually subscribe to a 2110-30 audio stream, go the "ST 2110 In" tab and set the "Essence Select" to "Audio". An example configuration is:

Essence Select	🔘 Video 💿 Audio 🔘 Audio Reuter 🔵 Anc
	Audio
Audio Essence	Disabled  Enabled
Number of Audio Channels	-
Packet Rate	) Ims 🕑 L25 us
a concord	Multicast IP Settings
SPP 1	
Unk	Disabled 💽 Enabled
Nulticast Address	239.30.91.1
UDP Port	\$ 0000
Source	● Any    Spacific
SFP 2	
Unk	Disabled 💿 Enabled
Multicast Address	239.30.92.1
LIDP Port	9000 \$
Source	● Any 🔵 Specific
100.000 C	
Path Row	Deabled Enabled
Staged Status	

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6. The default audio channel mapping is 1:1. You can manually map audio channels by changing the "Essence Select" to "Audio Router" and configuring as needed.

Essence Select	Video		Audio 🤅	) Aud	o Router 🔘 And							
		Audio Routing										
	Ch 1		Ch 2		Ch 3		Ch 4			ch 5		
Source Essence	Audio	-	Audio	-	Audio	-	Audio	•	Audio			
Source Channel	Ch 1	•	ch z	•	Ch 3	-	Ch 4	•	Ch 5			
Path Flow	🔵 Disabled 💽	Enabl	led									
Staged Status	Valid											

- 7. The unit can operate with a single link or with redundant links using 2022-7. The default is 2022-7. If you wish to disable this, go to the "ST 2110 Settings" tab to find this control.
- 8. You can monitor overall status via the "Input Status" tab on the left side of DashBoard. There is also status info under the "Input Status" tab on the left:

Cobalt (PEG	25 Demo - Slot 0	- Sapphire 886-2110-2H	×		and the second secon			
Slot 0: Sepphin	e 88G-2118-2H		14	JPEG-X6 Status		Logging	6T2110 Settings	
Card state:	CIK .			880	Presets	ACRU Settings	ACRU S	tation
connection:	ONLINE			PTP	\$T2110 In	NMCS Settings	Network	Admin
Preduct M	ietwork <u>Inpu</u>	l Status						
550.6	Beneluina	\$T2110 in				INCO	Xi Decader	
Video Type	1920x1080e 591	04.A			State	<ul> <li>Attive</li> </ul>		
Video 1 SPP 1	29.5.46 ins	D Sequence Prints			Errors	Mone		
Video 1 SEP 2	29.551 ka/s	O Sequence Errors			Frame Rate	59.00		
Audio 1 SEP 1	8.000	L San Jacob Leven			Bits per Pixel	2.65		
Auto 1 Sep 2	0.000 kpm	E Gamiance Errore		Pas	ket Length (bytes)	1280		
AME 1 GED 1	Masters In: Date	a sequence ansas		Lest Per	ket Length Öytes]	1280		
AND 1 1910 1	waiting for Date							
	Packet rate an are in the ST23	d error display controls L10 Settings tab.						