ATEM HD Clock Overlay for Thunder v1.2

The XOS Blackmagic ATEM includes the following components:

- ATEM unit with 12 Volt Power Supply
- USB Cable ATEM to Laptop for Setup
- CAT-5E or 6 Ethernet cable ATEM to Laptop
- Expresscard Ethernet port (Enet-2 in diagram below)

Video Requirements:

- Two HD video sources which can be either HDMI or HD-SDI 59.94
- The ATEM provides HD-SDI Output on Prog SDI
 - o This should be connected to the H.264 Pro-Encoder for capture into Thunder



Example Configuration



ATEM Setup & Configuration

• The first step in setting up your ATEM is to connect the USB cable which will allow you to set up the IP address for your device:



- Run the ATEM Setup Utility tool and use the XOS recommended settings listed below
 - o Note This will only need to be performed once upon initial configuration of your ATEM

| IP address: | 192.168.50.100 |
|--------------|----------------|
| Subnet mask: | 255.255.255.0 |
| Gateway: | 192.168.50.1 |

- Next an Ethernet cable must be connected between the laptop and the ATEM in order to use the ATEM UI to control the ATEM
- To connect via your laptop the IP address must be assigned to the Ethernet adaptor provided to be able to communicate with the ATEM device
 - o Note the Default gateway should be left blank on the Laptop as shown below

| ou can get IP settings assigned is capability. Otherwise, you n ir the appropriate IP settings. | I automatically if your network supports need to ask your network administrator |
|---|--|
| C Obtain an IP address autor | matically |
| Use the following IP addres ID address | 551 102 169 ED ED |
| Subnet mask: | 255 . 255 . 255 . 0 |
| Default gateway: | E E 0 |
| C Obtain DNS server address | s automatically |
| Use the following DNS serv | ver addresses: |
| Preferred DNS server: | · · · |
| Alternate DNS server: | |
| | it Odvaocad |
| Validate settings upon exi | Advanced |

ATEM Software Control

• When you launch the **ATEM Software Control** application on your laptop you will need to define the IP address of your ATEM device



• Click OK and if the Laptop can communicate to the ATEM over Ethernet the following UI will appear:



Be Sure to Select On Air to enable Video Key output to Program SDI

Settings Tab

Perform the following to configure the video format

- Note For use with Thunder all Video Inputs must be 720p
 - o Use an Up/Down/Cross Converter if necessary to provide the correct format
- Set video standard to 720p5994

| ATEM Televisio File Window | n Studio Help | | | | | | | | | | | |
|----------------------------|------------------|-------------|--|---------------------|---|--|--|--|--|--|--|--|
| ATEM | 1 Soft | ware Contro | l | | Blackmagicdesign | | | | | | | |
| | | Switcher S | Settings | Multi View Settings | | | | | | | | |
| Video Inputs | | | Video | | | | | | | | | |
| HDMI | Cam1 | Camera 1 | Set video standard: 720p5994 🗸 | | | | | | | | | |
| HDMI | Cam2 | Camera 2 | Set | | | | | | | | | |
| SDI | Cam3 | Camera 3 | Down Convertion | Preview | Program | | | | | | | |
| SDI | Cam4 | Camera 4 | Down Convertas. | | riogram | | | | | | | |
| SDI | Game | Camera 5 | RS-422 protocol is: 💿 VDCP | | | | | | | | | |
| SDI | Clk | Camera 6 | | | | | | | | | | |
| | | | Audio Audio breakout is: Program Audio Monitor Audio | | 03 04 04 04 04 04 04 04 04 04 04 04 04 04 | | | | | | | |
| | - | | Media Pool | | | | | | | | | |
| | | | | Camera 4 | Camera 6 | | | | | | | |
| | | ncel Set | Set | | | | | | | | | |
| Switch | | | Media Settings | | | | | | | | | |

- Now you should be able to use the ATEM Software Control UI to configure and operate your switcher
- First select your game camera feed as the program source
- Next press the "On Air" button to enable Video out to the Program SDI outputs.
- Before proceeding confirm that you have the ability to select a Video source and see the resulting Video Output to an HD-SDI monitor connected to Program SDI.
 - You can also use the Media Express Application to check video.

Audio Pass Through

Perform the following to configure audio pass through.

- On the bottom row of the ATEM Software Control UI click the Audio Tab
- The UI shown below should now appear

| ATEM Te File Window | elevision Stu w Help | ıdio | | | | | | | | | | | | | | | | | X |
|------------------------|-------------------------|----------------|-------|----------|------------|-------|-------|-------|--------|-----------|--------|--------|--------|-------|-------|-------|--------|----------|------------|
| AT | 'EM S | oftwa | are C | ontro | l | | | | | | | | | | | | | Blackmag | icdesign 🔒 |
| | | | | | | | | | Au | dio Mixer | | | | | | | | | |
| Cam1 | Cam2 | Cam3 | Cam4 | Game | Clk | | | | | | | | | | | | | EXT | MASTER |
| +6 | | | | | | | | | | | | | | | | | | | |
| | | - • • • | | - | - • | | | | | | | | | | | | | - | - • • |
| + 6 | | | | | | | | | | | | | | | | | | | |
| - 0 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| -20 | | | | | | | | | | | | | | | | | | | |
| -60 | | | | | | | | | | | | | | | | | | | |
| L R | LR | LR | LR | L R | L R | | | | | | | | | | | | | LR | LR |
| 0.00 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 | | | | | | | | | | | | | +0.00 | +0.00 |
| L · B | L B | L · R | L · R | L · R | L · B | | | | | | | | | | | | | L · R | |
| I ON | ON | ON | ON | ON | ON | lio 🗆 | lio 🗉 | - On | ino 🗉 | lio 🗆 | 🗏 Ori | 💷 Orij | lio 🗏 | lio 🗏 | 🗏 Oil | liq 🔍 | 🗏 Ori | ON | E Oil |
| 🗏 AFV | AFV | AFV | AFV | AFV | AFV | — AFV | 🗆 AFV | 🗏 AFV | 🗏 AFV | 🔲 AFV | 🔲 AFA | 🗏 AFV | 🔲 WEA | = AFA | 🔲 WEA | 🔲 WEA | 🗆 AFV | NFV | = Dibi |
| SOLO | SOLO | SOLO | SOLO | SOLO | SOLO | SOLO | SOLO | SOLO | 🔲 SOLO | 🔲 SOLO | 🔲 SOLO | SOLO | E SOLO | SOLO | SOLO | SOLO | C SOLO | SOLO | 🔲 Minle |
| | | | Au | dio | | | | | | | | | | | | | | | |
| | | | 1 | / | | | | | | | | | | | | | 2 | | |

- In order to allow Audio to pass through as shown below you must:
 - 1. Select AFV (Audio Follows Video) for the channel with Game Audio
 - 2. Ensure that EXT has ON selected

Save Settings as the Startup State

Perform the following to save your settings as the Startup State

- Note the state of the **On Air** button cannot be saved at this time
- You must click On Air via the ATEM UI after power up



Creating an Upstream Key to overlay Clock Video on Game Video

- The next task is to use the "Upstream Key1 M/E 1" to create an effect for the Clock video
 - o Select the fill source as your clock camera
 - Choose the position you would like the clock to appear from the presets
 - We have chosen the lower right position for this example
 - Adjust the size and symmetry of the picture to meet your needs
 - Note: the secondary screen is "cut" to only show the area you define. This is not a resize of the secondary source. You will have to position the clock in the appropriate area of your shot to match this area.
 - In this example the clock is positioned in the lower right of the camera shot so it lines up with the key box for size and position
- In our example we created the following Upstream Key to put the Clock in the lower right hand corner of the Screen as shown:



| + Media Player 2 |
|-------------------------|
| - Upstream Key 1 M/E 1 |
| |
| Luma Chroma Pattern DVE |
| Pattern Key Settings |
| Fill Source: Camera 2 |
| |
| Enable Mask |
| Top Mask: Left Mask. |
| |
| |
| |
| |
| |
| Invert Pattern |
| |
| Size: 12.6 % |
| Symmetry: 26.7 % |
| Softness: 🔵 0.0 % |
| X Position Y Position |

Troubleshooting Tips

- ATEM GUI is all Grey and Not Functional
 - The laptop cannot communicate over IP (Ethernet) to the ATEM
 - Check network settings
 - Try pinging the ATEM
- The ATEM and XOS BlackMagic H.264 Capture Devices use different drivers
 - You need to have the correct matching driver loaded for USB capture to work.
 - ATEM = 1.8
 - BM H.264 = ??? (Need to get)
- Media Express Application
 - When using Media Express for Video verification you need to ensure that the Media Express App can connect to the ATEM.
 - If Media Express does not connect the Video Data Line will indicate 1080i and NOT reflect what the actual Video signal is.
 - o Check the connection status under the Media Express Device Menu