

## Chapter 21 Specific Applications & Synchronization

This chapter explains some additional ways to use the VS-1680, including synchronizing two VS-1680s and synchronizing a VS-1680 and a VS-880. Press [PLAY(DISPLAY)] to begin each operation from the Playlist display.

### I. Synchronizing Two VS-1680s using MTC

The VS-1680 has the ability to generate and slave to MIDI Time Code (MTC). It also has the ability to vari-speed its sample rate to account for fluctuations in the source clock signal. This provides a sync that is frame accurate and allows you to do things such as lock to video and locate on the fly. The following example explains how to synchronize two VS-1680s using MTC and MMC. One VS-1680 acts as the MMC / MTC master, and the other acts as the MMC /MTC slave. Make connections as described below.

**? MMC** (Appendices p. 64)

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*\* In this example, you can use the master's Stereo In function for the mix balance between the master and slave VS-1680s (p. xx.) First adjust the individual track balances on both machines. Of course, you can also send the output of both VS-1680s to an external mixer. The master and slave units cannot be connected using digital connections when MTC is used for synch.*

#### **1. Settings for the Master VS-1680**

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

##### **Device ID**

This sets the Device ID number (1-32) used when exchanging exclusive messages (mixer parameters) with an external MIDI device. Exclusive messages can be transmitted and received between devices which have the same Device ID number. This should be set to "17".

##### **MIDI Thru (MIDI Thru Switch)**

This switches the function of the MIDI OUT / THRU connector. This should be set to "OUT".

**OUT:** The connector transmits MIDI messages such as metronome note messages or MTC from the VS-1680.

**THRU:** The connector transmits MIDI messages as received at the MIDI IN connector without any changes.

##### **SysEx.Tx (System Exclusive Transmit Switch)**

Exclusive messages are transmitted when this is set to "On". For this application, this must be set to "On".

### MMC (Midi Machine Control Mode)

This setting determines how the VS-1680 implements MMC. For this application, set this to "MASTER".

- Off:** MMC is neither transmitted nor received.
- MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.
- SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

### Control Type (Mixer Control Types)

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

- Off:** MIDI messages related to mixer settings are not transmitted or received.
- C.C.:** The mixer is controlled using Control Change messages.
- Excl:** The mixer is controlled using Exclusive messages.

*\* When "C.C." or "Excl" is selected, mixer adjustments made on the Master VS-1680 will result in the same mixer settings occurring on the Slave VS-1680. For more detailed information about Exclusive messages, refer to "MIDI Implementation" (Appendices p. 25)*

4. Hold [SHIFT] and press [EXT SYNC].
5. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make the settings as described below.

### Sync Source

This determines how the VS-1680 is synchronized with other devices. For this application, leave this on "INT".

- INT:** The VS-1680 runs according to its own internal clock. Use this setting when you are not synchronizing with other devices or when you want external MIDI devices to be controlled by sync signals from the VS-1680.
- EXT:** The VS-1680 is controlled by synchronization signals (MTC) from the external MIDI device. With this setting, the VS-1680 will not go into playback or record unless it is receiving MTC signals. Use this setting when you want to use the MTC from an external MIDI device to control the VS-1680.

### Sync Gen. (Generator)

This setting determines what type of MIDI signal is generated at the MIDI OUT connector on the VS-1680. For this application, set this to "MTC".

- Off:** No MIDI signals are transmitted.
- MTC:** MIDI Time Code is transmitted.
- MIDIclk:** The Tempo Map MIDI Clock is transmitted.
- SyncTr:** The Sync Track MIDI Clock is transmitted.

### Sync MTC Type (MTC Type)

This selects the type of MTC (30, 29N, 29D, 25, or 24). Set this to conform to the type of MTC on the slave VS-1680. For this application, set this to "30".

6. Press [PLAY(DISPLAY)] to return to the Playlist display.

## 2. Settings for the Slave VS-1680

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

### Device ID

This sets the Device ID number (1-32) used when exchanging exclusive messages (mixer parameters) with an external MIDI device. Exclusive messages can be transmitted and received between devices which have the same Device ID number. This should be set to "17".

### SysEx.Rx (System Exclusive Receive Switch)

Exclusive messages are received when this is set to "On". For this application, this must be set to "On". System Exclusive message can be received when the VS-1680 is in Play condition.

### MMC (Midi Machine Control Mode)

This setting determines how the VS-1680 implements MMC. Set this to "SLAVE".

- Off:** MMC is neither transmitted nor received.
- MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.
- SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

### Control Type (Mixer Control Types)

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

- Off:** MIDI messages related to mixer settings are not transmitted or received.
- C.C.:** The mixer is controlled using Control Change messages.
- Excl:** The mixer is controlled using Exclusive messages.

*\* When "C.C." or "Excl" is selected, mixer adjustments made on the Master VS-1680 will result in the same mixer settings occurring on the Slave VS-1680. For more detailed information about Exclusive messages, refer to "MIDI Implementation" (Appendices p. 25)*

4. Hold [SHIFT] and press [EXT SYNC].
5. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make the settings as described below.

### Sync Error Level

This sets the interval (0-10) for checking MTC receiving status when synchronizing to MTC from an external MIDI device. If MTC is not being sent continuously, the VS-1680 checks the MTC and if there is an error, temporarily cancels synchronization. Selecting a longer interval under such circumstances will allow synchronization to continue, even if errors are present. Normally, this is set to "5".

### Sync MTC Type (MTC Type)

This selects the type of MTC (30, 29N, 29D, 25, or 24). Set this to conform to the type of MTC on the master VS-1680. For this application, set this to "30".

6. Press [PLAY(DISPLAY)] to return to the Playlist display.
7. Press [EXT SYNC]. The button indicator blinks, indicating the VS-1680 is ready to receive MTC. **In this condition, the slave VS-1680 operates in sync with the master VS-1680.** The EXT SYNC indicator is lit during this condition.

### Digital Connections Cannot Be Used With MTC

When Sync Source is set to "EXT", the VS-1680 operates according to the Clock signal (MTC) transmitted by the external MIDI device. At this point, if you set the master Clock to "DIGIN1" or "DIGIN2", the VS-1680 then also attempts to operate according to the Clock signal (Digital) from the external digital device. This means the internal clock becomes mismatched. When MTC is used to synchronize two VS-1680s, the slave VS-1680 cannot record digital signals from the master VS-1680, or vice-versa.

If the Clock on the master VS-1680 is set to "DIGIN1" or "DIGIN2", the master VS-1680 operates according to the Clock signal (Digital) transmitted from the external digital device (the slave VS-1680, in this case.) It is also possible for the master VS-1680 to generate MTC. However, this setting results in a clock signal feedback loop: The slave VS-1680 attempts to operate according to the MTC transmitted by the master VS-1680, and the master VS-1680 attempts to operate according to the Digital Clock transmitted by the slave VS-1680. In such instances, it is not possible to synchronize two VS-1680s as there is no reference clock. To synchronize two VS-1680s using a Digital Clock, see "Synchronizing Two VS-1680s using MMC and Digital Clock".

## II. Synchronizing Two VS-1680s using MMC and Digital Clock

In addition to using MTC, two VS-1680s can be synchronized using MIDI Machine Control (MMC) and Digital Clock. MMC messages control the transport functions, while Digital Clock messages provide a timing reference. This allows you to transfer the audio from the slave unit to the master without leaving the digital domain. The following example explains how to synchronize two VS-1680s where one functions as a slave device to the other VS-1680 using MMC, and Digital Clock from the slave VS-1680 provides clock reference to the master VS-1680.

### Setup

Use the following procedure to setup two VS-1680s to operate in sync using MMC and Digital Clock. Designate one VS-1680 as the master device. The other is referred to as the slave.

1. Connect the MIDI OUT jack of the master VS-1680 to the MIDI IN jack of the slave VS-1680.
2. Connect the DIGITAL OUT 1 jack of the slave VS-1680 to the DIGITAL IN 1 jack on the master VS-1680.

3. Turn both VS-1680s on, and make sure the current song's sample rate is the same on both units.

*NOTE: If you are unsure what the current song's sampling rate is, hold [SHIFT] and press [PLAY(DISPLAY)] until the song name appears. The sample rate will be displayed below the song name next to "Rate". If the sample rates of the two VS-1680s do not match, you will need to create a new song on either the master or the slave with a sample rate that matches the other unit.*

#### 1. **MASTER VS-1680 Settings**

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
2. Press [F1(SYSPRM)].
3. Use [←], [→], [↑], and [↓] to move the cursor to "Master Clock" and the TIME / VALUE dial to select "DIGIN1". "Digital In Lock" momentarily appears in the display.
4. Press [F6(EXIT)] to return to the System Menu screen.
5. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
6. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

##### **MIDI Thru (MIDI Thru Switch)**

This switches the function of the MIDI OUT / THRU connector. This should be set to "OUT".

**OUT:** The connector transmits MIDI messages such as metronome note messages or MTC from the VS-1680.

**THRU:** The connector transmits MIDI messages as received at the MIDI IN connector without any changes.

##### **SysEx.Tx (System Exclusive Transmit Switch)**

Exclusive messages are transmitted when this is set to "On". For this application, this must be set to "On".

##### **MMC (Midi Machine Control Mode)**

This setting determines how the VS-1680 implements MMC. For this application, set this to "MASTER".

**Off:** MMC is neither transmitted nor received.

**MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.

**SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

##### **Control Type (Mixer Control Types)**

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

**Off:** MIDI messages related to mixer settings are not transmitted or received.

**C.C.:** The mixer is controlled using Control Change messages.

**Excl:** The mixer is controlled using Exclusive messages.

*\* When "C.C." or "Excl" is selected, mixer adjustments made on the Master VS-1680 will result in the same mixer settings occurring on the Slave VS-1680. For more detailed information about Exclusive messages, refer to "MIDI Implementation" (Appendices p. 25)*

10. Press [PLAY(DISPLAY)] to return to the Playlist display.

Now that you have made the necessary settings for synchronization, it is necessary to route the digital output of the slave VS-1680 into the master VS-1680 to have a single mix that contains the audio from both units. Use the following procedure:

1. On the slave VS-1680, position the Master Fader to "0".
2. On the master VS-1680, press ST IN SELECT so that it is lit.
3. Use [←], [→], [↑], and [↓] to move the cursor to "Select" and use the TIME / VALUE dial to choose "Digital".
4. Press [↓] to move the cursor to the Fader value and use the TIME / VALUE dial to adjust the level of the incoming signal to "100".
5. Press [↓] and use the TIME / VALUE dial to set the Stereo In pan to "0".

## 2. SLAVE VS-1680 Settings.

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

### SysEx.Rx (System Exclusive Receive Switch)

Exclusive messages are received when this is set to "On". For this application, this must be set to "On". System Exclusive message can be received when the VS-1680 is in Play condition.

### MMC (Midi Machine Control Mode)

This setting determines how the VS-1680 implements MMC. Set this to "SLAVE".

- Off:** MMC is neither transmitted nor received.
- MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.
- SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

### Control Type (Mixer Control Types)

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

- Off:** MIDI messages related to mixer settings are not transmitted or received.
- C.C.:** The mixer is controlled using Control Change messages.
- Excl:** The mixer is controlled using Exclusive messages.

*\* When "C.C." or "Excl" is selected, mixer adjustments made on the Master VS-1680 will result in the same mixer settings occurring on the Slave VS-1680. For more detailed information about Exclusive messages, refer to "MIDI Implementation" (Appendices p. 25)*

4. Hold [SHIFT] and press [EXT SYNC].
5. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make the settings as described below.

### **Sync Source**

This determines how the VS-1680 is synchronized with other devices. For this application, leave this on "INT".

**INT:** The VS-1680 runs according to its own internal clock. Use this setting when you are not synchronizing with other devices or when you want external MIDI devices to be controlled by sync signals from the VS-1680.

**EXT:** The VS-1680 is controlled by synchronization signals (MTC) from the external MIDI device. With this setting, the VS-1680 will not go into playback or record unless it is receiving MTC signals. Use this setting when you want to use the MTC from an external MIDI device to control the VS-1680.

6. Press [PLAY(DISPLAY)] to return to the Playlist display.

When you press PLAY on the master VS-1680, both units will start playing. The Master VS-1680 acts as the MMC master. The clock in the Master VS-1680 is based on the Digital Clock Signal sent via the Digital Input from the slave VS-1680. The Master VS-1680's mix output will contain audio from both units. Continue to control individual track levels from the Slave VS-1680 using its Track Faders.

## **III. Synchronizing a VS-1680 and VS-880**

This section explains how to synchronize a VS-1680 and a VS-880. The VS-1680 functions as the MMC / MTC master, and the VS-880 functions as the MMC /MTC slave. The first example explains the procedure for synchronizing a VS-1680 with a VS-880 using MIDI Time Code. The second example explains how to synchronize the two units using MIDI Machine Control and Digital Clock. Make connections as described below.

### **A. Syncing the VS-880 to the VS-1680 using MTC**

Both the VS-1680 and the VS-880 have the ability to generate and slave to MIDI Time Code (MTC). They also have the ability to varispeed their sample rate to account for fluctuations in the source signal. This provides a sync that is frame accurate and allows you to do things such as lock to video and locate on the fly. The following example explains how to synchronize the VS-880 as a slave device to the VS-1680 using MIDI Time Code.

#### **Setup**

The only items needed to synchronize the VS-1680 and VS-880, are a MIDI cable and a pair of audio cables. Use the following procedure to setup a VS-1680 and VS-880 to operate in sync with the VS-1680 as the master device:

1. Connect the MIDI OUT jack of the VS-1680 to the MIDI IN jack of the VS-880.
2. Connect the left MASTER OUT jack of the VS-880 to INPUT 3 on the VS-1680.
3. Connect the right MASTER OUT jack of the VS-880 to INPUT 4 on the VS-1680.

## 1. VS-1680 Settings

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

### Device ID

This sets the Device ID number (1-32) used when exchanging exclusive messages (mixer parameters) with an external MIDI device. Exclusive messages can be transmitted and received between devices which have the same Device ID number. This should be set to "17".

### MIDI Thru (MIDI Thru Switch)

This switches the function of the MIDI OUT / THRU connector. This should be set to "OUT".

**OUT:** The connector transmits MIDI messages such as metronome note messages or MTC from the VS-1680.

**THRU:** The connector transmits MIDI messages as received at the MIDI IN connector without any changes.

### SysEx.Tx (System Exclusive Transmit Switch)

Exclusive messages are transmitted when this is set to "On". For this application, this must be set to "On".

### MMC (Midi Machine Control Mode)

This setting determines how the VS-1680 implements MMC. For this application, set this to "MASTER".

**Off:** MMC is neither transmitted nor received.

**MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.

**SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

### Control Type (Mixer Control Types)

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

**Off:** MIDI messages related to mixer settings are not transmitted or received.

**C.C.:** The mixer is controlled using Control Change messages.

**Excl:** The mixer is controlled using Exclusive messages.

4. Hold [SHIFT] and press [EXT SYNC].
5. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make the settings as described below.

### Sync Source



This determines how the VS-1680 is synchronized with other devices. For this application, leave this on "INT".

**INT:** The VS-1680 runs according to its own internal clock. Use this setting when you are not synchronizing with other devices or when you want external MIDI devices to be controlled by sync signals from the VS-1680.

**EXT:** The VS-1680 is controlled by synchronization signals (MTC) from the external MIDI device. With this setting, the VS-1680 will not go into playback or record unless it is receiving MTC signals. Use this setting when you want to use the MTC from an external MIDI device to control the VS-1680.

### **Sync Gen. (Generator)**

This setting determines what type of MIDI signal is generated at the MIDI OUT connector on the VS-1680. For this application, set this to "MTC".

<b>Off:</b>	No MIDI signals are transmitted.
<b>MTC:</b>	MIDI Time Code is transmitted.
<b>MIDIclk:</b>	The Tempo Map MIDI Clock is transmitted.
<b>SyncTr:</b>	The Sync Track MIDI Clock is transmitted.

### **Sync MTC Type (MTC Type)**

This selects the type of MTC (30, 29N, 29D, 25, or 24). Set this to conform to the type of MTC on the slave VS-880. For this application, set this to "30".

6. Press [PLAY(DISPLAY)] to return to the Playlist display.

After making the necessary settings for synchronization, it is necessary to route the Master outputs of the VS-880 into the VS-1680 to have a single output that contains the audio from both units. Use the following procedure.

1. Set the MASTER fader on the VS-880 to "0".
2. Turn the INPUT 3 and 4 knobs on the VS-1680 to the 12 o'clock position (straight up).
3. Press the ST IN SELECT on the VS-1680 so that it is lit.
4. Use [←], [→], [↑], and [↓] to choose "Select" and use the TIME / VALUE dial to select "Input 3/4".
5. Press [↓] and use the TIME / VALUE dial to adjust the level to "100".
6. Press [↓] and use the TIME / VALUE dial to set the Stereo In pan to "0".

## **2. VS-880 Settings**

1. Press [SYSTEM] until "SYS MIDI PRM?" is displayed and press [YES / ENTER].
2. Press the PARAMETER RIGHT button until "SYS EX RX" is displayed and use the TIME / VALUE dial to select "ON."
3. Press the PARAMETER RIGHT button until "MMC =" is displayed and use the TIME / VALUE dial to select "SLAVE."
4. Press the PARAMETER RIGHT button until "OUT/THRU =" is displayed and use the TIME / VALUE dial to select "OUT."
5. Press [SYSTEM] until "SYS SYNC/TEMPO" is displayed and press [YES / ENTER].
6. Use the TIME / VALUE dial to select "EXT."

7. Press the PARAMETER RIGHT button so that "MTC TYPE" is displayed and use the TIME / VALUE dial to select "30."
8. Press [PLAY(DISPLAY)] to return to the main screen.

When you press PLAY on the VS-1680, both units will start playing. The VS-1680's stereo mix output will now contain audio from both units.

## **B. Syncing the VS-1680 with the VS-880 using MMC and Digital Clock**

In addition to MIDI Time Code, the VS-1680 and VS-880 can be synchronized using MIDI Machine Control (MMC) and Digital Clock. MMC messages control the transport functions, while Digital Clock messages provide a timing reference. This allows you to transfer the audio from the slave unit to the master without leaving the digital domain. The following example explains how to synchronize the VS-880 as a slave device to the VS-1680 using MMC and Digital Clock.

### **Setup**

Use the following procedure to setup a VS-880 to operate in sync with the VS-1680 as the master device:

1. Connect the MIDI OUT jack of the VS-1680 to the MIDI IN jack of the VS-880.
2. Connect DIGITAL OUT jack of the VS-880 to the DIGITAL IN 1 jack on the VS-1680.

*NOTE: Make sure that both the VS-1680 and VS-880 are powered on and that the current song's sampling rate (48kHz, 44.1kHz, or 32kHz) is the same on both units. If you are unsure what the current song's sampling rate is set to, press [PLAY(DISPLAY)] on the VS-880 to access the Playlist screen. Then, hold [SHIFT] and press [SONG]. The sampling rate will be displayed under "SYNC MODE." On the VS-1680, hold [SHIFT] and press [PLAY(DISPLAY)] until the song name appears. The sample rate will be displayed below the song name next to "Rate." The sampling rate is linked to the song. If the sample rates between the VS-880 and the VS-1680 do not match, you will need to create a new song on either the VS-1680 or the VS-880 with a sampling rate that matches the other unit.*

### **1. VS-1680 Settings**

1. Hold [SHIFT] and press [F5(SYSTEM)].
2. Press [F1(SYSPRM)].
3. Use [←], [→], [↑], and [↓] to select the Master Clock icon and use the TIME / VALUE dial to select "DIGIN1". "Digital In Lock" momentarily appears in the display.
4. Press [F6(EXIT)] to return to the System Menu screen.
5. Press [F4(MIDI)].
6. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

#### **MIDI Thru (MIDI Thru Switch)**

This switches the function of the MIDI OUT / THRU connector. This should be set to "OUT".

**OUT:** The connector transmits MIDI messages such as metronome note messages or MTC from the VS-1680.

**THRU:** The connector transmits MIDI messages as received at the MIDI IN connector without any changes.

#### **SysEx.Tx (System Exclusive Transmit Switch)**

Exclusive messages are transmitted when this is set to "On". For this application, this must be set to "On".

#### **MMC (Midi Machine Control Mode)**

This setting determines how the VS-1680 implements MMC. For this application, set this to "MASTER".

- Off:** MMC is neither transmitted nor received.
- MASTER:** MMC is transmitted. The VS-1680 functions as the master device for controlling the Machine Controls (Transport Controls) of external MIDI equipment.
- SLAVE:** MMC is received. The VS-1680 functions as a slave device to the Machine Controls (Transport Controls) of external MIDI equipment.

#### **Control Type (Mixer Control Types)**

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, leave this "Off".

- Off:** MIDI messages related to mixer settings are not transmitted or received.
- C.C.:** The mixer is controlled using Control Change messages.
- Excl:** The mixer is controlled using Exclusive messages.

7. Press [PLAY(DISPLAY)] to return to the Playlist display.

Now that you have made settings for synchronization, it is necessary to route the Master outputs of the VS-880 into the VS-1680 to have a single output that contains the audio from both units. Use the following procedure:

1. Set the VS-880's MASTER fader to "0" (about two-thirds of the way up).
2. Press ST IN SELECT so that it is lit.
3. Use [←], [→], [↑], and [↓] to choose "Select" and use the TIME / VALUE dial to select "Digital".
4. Press [↓] and use the TIME / VALUE dial to adjust the Fader Level to "100".
5. Press [↓] and use the TIME / VALUE dial to set the Stereo In pan to "0" (center).

#### **2. VS-880 Settings**

1. Press SYSTEM until "SYS MIDI PRM" is displayed and press [YES].
2. Press the PARAMETER RIGHT button until "SYS EX RX" is displayed and use the TIME / VALUE dial to select "ON."
3. Press the PARAMETER RIGHT button until "MMC=" is displayed and use the TIME / VALUE dial to select "SLAVE."
4. Press SYSTEM until "SYS SYNC/TEMPO" is displayed and press [YES].
5. Use the TIME / VALUE dial to select "Syn:Source = INT".
6. Press [PLAY(DISPLAY)] to return to the main screen.

When you press PLAY on the VS-1680, both units will start playing. The VS-1680's mix output will now contain audio from both units.

### III. Using an External MIDI Device to control the Mixer (Compu Mix)

The VS-1680 can send and receive mixer settings and fader movements as MIDI messages. You can use an external MIDI controller to control the VS-1680's faders. You can also use an external MIDI sequencer to record mixer settings and movements during playback as MIDI song data, and the mixer can be controlled automatically by the MIDI sequencer when the song is played back later. This is referred to as **Compu Mix**. Compu Mix uses Control Change messages and Exclusive messages.

#### **When using Exclusive Messages**

When working in Compu Mix, you should use normal Control Change messages. However, if the Control Change messages affect the settings of other MIDI devices in your setup, you can use System Exclusive messages instead. For more detailed information about Control Change messages and Exclusive messages, refer to "MIDI Implementation" (Appendices p.25).

#### **A. Correspondence Between MIDI Channels and Controller Numbers**

MIDI channels correspond to the mixer channels as shown below. For channels paired using the Stereo Link function, Control Change messages can be exchanged using the odd-numbered channel's MIDI channel. Control Change messages transmitted via the even-numbered channel's MIDI channel are ignored

<u>MIDI Channel</u>	<u>Input Mixer</u>	<u>Track Mixer</u>	<u>Master Block</u>
1	1	1	-
2	2	2	-
3	3	3	-
4	4	4	-
5	5	5	-
6	6	6	-
7	7	7	-
8	8	8	-
9	DIGITAL L	9	-
10	DIGITAL R	10	-
11	ST IN	11	-
12	EFX1	12	-
13	EFX2	13	-
14	EFX3	14	-
15	EFX4	15	-
16	-	16	Master Block

Controller numbers correspond to the track channel parameters as follows.

<u>Controller Number</u>	<u>Mixer Parameter</u>
3	TRACK STATUS
7	MST Send Level
9	Level Meter
10	MST Send Pan / Balance
12	EQ L Freq.
13	EQ L Gain
14	EQ M Freq.
15	EQ M Gain
16	EQ M Q
17	EQ H Freq.
18	EQ H Gain

19	EFX1 SND Level
20	EFX1 SND Pan / Balance
21	EFX2 SND Level
22	EFX2 SND Pan / Balance
23	EFX3 SND Level
24	EFX3 SND Pan / Balance
25	EFX4 SND Level
26	EFX4 SND Pan / Balance
27	AUX Send Level
28	AUX Send Pan / Balance
29	MST Offset Level
30	MST Offset Balance

Controller numbers correspond to the input channel parameters as follows.

<u>Controller Number</u>	<u>Mixer Parameter</u>
68	MST Send Level
70	MST Send Pan / Balance
71	EQ L Freq.
72	EQ L Gain
73	EQ M Freq.
74	EQ M Gain
75	EQ M Q
76	EQ H Freq.
77	EQ H Gain
78	EFX1 SND Level
79	EFX1 SND Pan / Balance
80	EFX2 SND Level
81	EFX2 SND Pan / Balance
82	EFX3 SND Level
83	EFX3 SND Pan / Balance
84	EFX4 SND Level
85	EFX4 SND Pan / Balance
86	AUX Send Level
87	AUX Send Pan / Balance
88	MST Offset Level
89	MST Offset Balance

Controller numbers correspond to the Master Block parameters as follows.

<u>Controller Number</u>	<u>Mixer Parameter</u>
68	Master Level
70	Master Balance
78	EFX1 SND Level
79	EFX1 SND Balance
80	EFX2 SND Level
81	EFX2 SND Balance
82	EFX3 SND Level
83	EFX3 SND Balance
84	EFX4 SND Level
85	EFX4 SND Balance
86	AUX Level
87	AUX Balance
102	Monitor Level
102	Monitor Balance
104	Monitor L Meter
105	Monitor R Meter

106  
107

Master L Meter  
Master R Meter

## B. Preparations for Compu Mix

1. Make connections as shown below.

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2. Hold [SHIFT] and press [F5(SYSTEM)]. The System Menu appears in the display.  
If the System Menu does not appear, press [F6(EXIT)].
3. Press [F4(MIDI)]. If "MIDI" does not appear above [F4], press [PAGE] until "MIDI" appears, then press [F4(MIDI)].
4. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to make settings for each parameter as described below.

### MIDI Thru (MIDI Thru Switch)

This switches the function of the MIDI OUT / THRU connector. This should be set to "OUT".

**OUT:** The connector transmits MIDI messages such as metronome note messages or MTC from the VS-1680.

**THRU:** The connector transmits MIDI messages as received at the MIDI IN connector without any changes.

### Cntrl Local (Control Local Switch)

When this is set to "Off", volume levels of mixer channels cannot be changed using the physical faders on the mixer. The physical mixer faders are disabled. Normally, this setting is left "On". For this application, make sure the Control Local Switch is set "On".

### Control Type (Mixer Control Types)

This selects the type of MIDI messages used when transmitting mixer settings to an external MIDI device, or when MIDI messages from an external MIDI device are used to control the mixer. For this application, set this to "C.C.".

**Off:** MIDI messages related to mixer settings are not transmitted or received.

**C.C.:** The mixer is controlled using Control Change messages.

**Excl:** The mixer is controlled using Exclusive messages.

5. Follow the procedure described in "Synchronizing with MIDI Sequencers" (p. xx) to make the necessary settings in both the VS-1680 and the MIDI sequencer to synchronize the two machines. Make sure to set the MIDI sequencer so MIDI messages received at the MIDI In connector are not output from the MIDI Out connector.

## C. Recording with Compu Mix

1. Prepare the VS-1680's initial mixer settings (i.e. panning, faders, EQ, etc.) during song playback. Then press [STOP] and rewind to the beginning of the song.
2. Put the MIDI sequencer into RECORD mode, and press [PLAY] on the VS-1680.
3. As soon as playback of the VS-1680 starts, immediately hold [SHIFT] and press [SCENE]. The mixer's initial settings is transmitted from the MIDI OUT connector.

4. As the song continues to play, make adjustments to the faders and other mixer settings as desired.
5. When the song is finished playing, stop the MIDI sequencer and the VS-1680.

This completes the recording with Compu Mix. When you rewind to the beginning of the MIDI sequence and the VS-1680 song and then begin playback, all mixer settings are controlled according to the Compu Mix. Save the MIDI song file to a floppy disk or other storage media.

#### **D. To Have Fader Movements Ignored**

When playing songs using Compu Mix, you might want the track volumes recorded using Compu Mix to play, even if the physical track faders on the mixer are moved. In such instances, use the following procedure.

1. Hold [SHIFT] and press [F5(SYSTEM)]. The System menu icon appears in the display. If the System menu icon does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear in the display above [F4], press [PAGE] until "MIDI" appears, and then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor to "Cntrl Local" and use the TIME / VALUE dial to change the setting.

#### **Cntrl Local (Control Local Switch)**

When this is set to "Off", volume levels of mixer channels cannot be changed using the physical faders on the mixer. The physical mixer faders are disabled. Normally, this setting is left "On". For this application, make sure the Control Local Switch is set "Off".

4. Press [PLAY(DISPLAY)] to return to the Playlist display.

## IV. Synchronizing with Video Equipment

When used in combination with the optional Roland SI-80S LANC to MTC Converter, you can control playback and stop functions of the VS-1680 using consumer video equipment. This video equipment must provide a consumer video interface that conforms to RCTC time code. On many video products, this interface is labeled "LANC". Make connections as shown below, and refer to the SI-80S owner's manual and the owner's manual for your video device.

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1. Hold [SHIFT] and press [F5(SYSTEM)]. The System menu icon appears in the display. If the System menu icon does not appear, press [F6(EXIT)].
2. Press [F4(MIDI)]. If "MIDI" does not appear in the display above [F4], press [PAGE] until "MIDI" appears, and then press [F4(MIDI)].
3. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to change the setting.

#### **SysEx.Rx (System Exclusive Receive Switch)**

Exclusive messages are received when this is set to "On". For this application, set to "On". Exclusive messages can be received when the VS-1680 is in Play condition.

#### **MMC (MIDI Machine Control)**

This setting determines how the VS-1680 implements MIDI Machine Control. For this application, set this to "SLAVE".

**Off:** MMC is off. MMC is neither transmitted nor received.

**MASTER:** MMC is transmitted. The VS-1680 functions as the master device for external MIDI equipment.  
**SLAVE:** MMC is received. The VS-1680 functions as a slave device for external MIDI equipment.

4. Hold [SHIFT] and press [EXT SYNC]. The Sync / Tempo screen appears in the display.
5. Use [←], [→], [↑], and [↓] to move the cursor and use the TIME / VALUE dial to change the settings.

#### **Sync Error Level**

This sets the interval (0-10) for checking MTC reception when synchronizing the VS-1680 as MTC is transmitted by an external MIDI device. When MTC is not sent continuously, the VS-1680 checks the MTC and cancels synchronization if there is an error. By setting a longer interval under such circumstances, synchronization can continue, even if there are errors in the source MTC.

#### **Sync MTC Type**

This selects the MTC frame rate (30, 29N, 29D, 25,24). Select the MTC rate so it matches the rate of the SI-80S (30, 29D or 29N).

6. Press [PLAY(DISPLAY)] to return to the Playlist display.
7. Press [EXT SYNC]. The button indicator lights, indicating the VS-1680 is synchronized using MTC received from the SI-80S. **In this condition, commands such as PLAY and STOP performed on the video equipment are also performed on the VS-1680.**

## V. Using External Effects Units

When using external effects devices, the AUX A/B jacks junction as effects send jacks. The following example describes how effects can be added to stereo recording on Track 9/10. Follow these steps when you want to use an external effects unit. Use the INPUT 7 and 8 jacks as the effect return jacks.

1. Connect your effects unit as shown below.

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2. Press Track 9/10 SELECT. The Track Mixer appears in the display.
3. Press [F5(AUX)]. If "AUX" does not appear in the display above [F5], press [PAGE] until you see "AUX", and then press [F5(AUX)].

*\* If EFFECT B is not installed in the VS-1680, then [F4] displays "AUX3".*

4. Move the cursor to "AUX Sw." Use the TIME / VALUE dial to select "Pst".
5. Press [↑] and [↓] to move the cursor. Adjust the volume level (0 - 127) and pan (L63 - R63) as needed.
6. Press [MASTER]. The Master Block appears in the display.
7. Press [F3(AUX.A)]. If "AUX.A" does not appear in the display above [F3], press [PAGE] until you see "AUX.A", and then press [F3(AUX.A)].
8. Move the cursor to "AUX.A." Use the TIME / VALUE dial to select "AUX".
9. Press [ST IN].
10. Use the TIME / VALUE to select "Input 7/8" for StereoIn Select.
11. Press [↑] and [↓] to move the cursor. Adjust the volume level (0 - 127) and pan (L63 - R63) as needed.



12. Press [PLAY(DISPLAY)] to return to the Playlist display. You are now ready to use the external effect unit.
13. While playing back the song, adjust the sound of the effect. To control the external effect return level using the channel fader on the VS-1680 press [FADER/MUTE] so "IN" is lit. Then use the "ST IN" fader (same as Track Fader 11/12) to adjust external effect return level. When you are satisfied with the level, press [FADER/MUTE] so "TR" is lit.