**Hauptwerk V: System Overview**

**MIDI/Data/Audio Signal Path**

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| AhlbornOrgan Console | MOTUMIDIInterface | **Mac Mini Computer** | MOTUAVBAudio Interface(Hardware) | Speakers |
| Hauptwerk V | Reaper | Firefox |
| Organ Settings*(Loaded by Organ)* | HW Mixer*(Loaded by Mixer Preset Assigned to Organ)* | HWAudio Outputs(VST/AU) | ReaperMixer | MOTUAVB Software |
| *Rank Voicing* | *Rank Routing* | *Audio Mixer Bus Groups* | PrimaryMixerBusses(1024) | Intermediate MixerBusses(8) | Master Mixer Busses(8) |
| SampleSetRanks | Output Perspectives | Mixer Bus Groups |
| MIDI -> | MIDI -> | Data -> | Data -> | Data -> | Data -> | Data ->Reverb Returns toMaster Mixer Bus Outputs -> | Data -> | Data to VST/AU -> | MIDI/Data | Data -> | Data to Audio -> | Line Audio -> | Amplified Audio |
| HW/GT -> | -> | HW | -> | HW | HW Clean | Primary Mixer Reverb Channelsfeed to Intermediate Mixer Busses: Reverb Applied -> Master Mixer Bus Outputs |  | **Console Clean** | Console -> | AdjustConsole Output Level | Control Hardware Effects | ConsoleAudio-> | ConsoleSpeakers | L |
| HW 16’ | HW Surround | **Console****Surr/Rev** | R |
| HW Reverb |
| SW-> | -> | SW | -> | SW | SW Clean | **Tower Clean** | Tower -> | AdjustTower Output Level | Control Hardware Effects | TowerAudio -> | TowerSpeakers | L |
| SW 16’ | SW Surround | **Tower****Surr/Rev** | R |
| Solo | SW Reverb |
| CH/POS-> | -> | -> | Solo | Solo Clean | **Bookshelf Clean** | Bookshelf -> | AdjustBookshelf Output Level | Control Hardware Effects | BookshelfAudio-> | BookshelfSpeakers | L | SW |
| Solo 16’ | Solo Surround |
| Solo Reverb |
| Ch/Pos | Ch/Pos | Ch/Pos Clean | **Bookshelf****Surr/Rev** | R |
| Ch/Pos 16’ | Ch/Pos Surround |
| Ch/Pos Reverb |
| PED-> | -> | Pedal | -> | Pedal | Manuals 16’ Clean | **Pedal/****Subwoofer** | Pedal/Subwoofer -> | Adjust Pedal/Subwoofer Level | Control Hardware Effects | Pedal/SubwooferAudio-> | PedalSpeakers | SW**Console**: Set of Full-Range L/R Speakers**Tower:** Self-Powered L/R Studio Monitors**Bookshelf:** Stereo amp L/R  w/powered SW**Pedal**: Powered SW w/crossover Feeding upper frequencies to  Self-Powered L/R Studio Monitors | L |
| Man. 16’ Surround |
| Man. 16’ Reverb |
| Pedal Clean | R |
| Pedal Surround |
| Pedal Reverb |
| ***Rank Voicing/Routing*** assigns sounds from selected ranks to ***Mixer Bus Groups***as ***Output Perspectives***by chosen algorithm.  | Surround Samples*For all**above-listed divisions* | -> | HW Surr. |   | Console Reverb Out | **Master****Stereo Mix** | Recording -> | Audio File Recording |  |  |  |  |
| Sw Surr. | Tower Reverb Out |
| Solo Surr. | Solo Reverb Out |
| Ch/Pos Surr. | Bookshelf Rev. Out |  |  |
| Man 16’ Surr. | Man. 16’ Rev Out |  |  |
| Pedal Surr. | Pedal Reverb Out |  |  |
| **Hauptwerk Mixer Presets:**Mixer Preset 1: Clean (Samples passed directly to outputs, no reverb)Mixer Preset 2: Stereo Master (Stereo Mix to All Channels)Mixer Preset 3: 2-Manual, Wet/Dry (Reverb/Surround to Bookshelf)Mixer Preset 4: 3-Manual, Ch/Pos to Bookshelf (Integrated Surround)Mixer Preset 5: 3-Manual, Ch/Pos to Tower (Isolated Surround)Mixer Preset 6: 4-Manual, Ch/Pos to Bookshelf (Integrated Surround)Mixer Preset 7: 4-Manual, Ch/Pos to Tower (Isolated Surround)Mixer Preset 8: Comprehensive Surround (for sets w/6-channel surround) | Other Primary Mixer Busses Assigned as necessary*Mechanical,**Stop/Key Action* *Sound Effects, etc.* | Reverb Aux Stereo Mix => | Headphones | -> | -> | -> |  Stereo Headphones |
| **HW Convolution****Reverb***Wetness Controlled via MIDI Hardware*  | **Primary Mixer Busses ->** -> Intermediate Busses-> Master Busses-> Direct to Outputs**Intermediate Mixer Busses ->**-> Master Busses-> Direct to Outputs | AdjustsLevels by Division via MIDI Hardware Controls | Browser-Based Software:ControlsHardware, Reverb,Compression, Other Effects | Applies Hardware Effects &Routes Audio to Physical Speakers | Accurate as of 7 January 2020© 2020 Matthew J. Reese  |