**Hauptwerk V: System Overview**

**MIDI/Data/Audio Signal Path**

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| Ahlborn  Organ Console | MOTU  MIDI  Interface | **Mac Mini Computer** | | | | | | | | | | MOTU  AVB  Audio Interface  (Hardware) | Speakers | | | |
| Hauptwerk V | | | | | | | | Reaper | Firefox |
| Organ Settings  *(Loaded by Organ)* | | | HW Mixer  *(Loaded by Mixer Preset Assigned to Organ)* | | | | HW  Audio Outputs  (VST/AU) | Reaper  Mixer | MOTU  AVB Software |
| *Rank Voicing* | *Rank Routing* | *Audio Mixer Bus Groups* | Primary  Mixer  Busses  (1024) | Intermediate Mixer  Busses  (8) | | Master Mixer Busses  (8) |
| Sample  Set  Ranks | Output Perspectives | Mixer Bus Groups |
| MIDI -> | MIDI -> | Data -> | Data -> | Data -> | Data -> | Data ->  Reverb Returns to  Master 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 Channels  feed to Intermediate Mixer Busses:  Reverb Applied -> Master Mixer Bus Outputs |  | **Console Clean** | Console -> | Adjust  Console Output Level | Control Hardware Effects | Console  Audio  -> | Console  Speakers | | L | |
| HW 16’ | HW Surround | **Console**  **Surr/Rev** | R | |
| HW Reverb |
| SW  -> | -> | SW | -> | SW | SW Clean | **Tower Clean** | Tower -> | Adjust  Tower Output Level | Control Hardware Effects | Tower  Audio  -> | Tower  Speakers | | L | |
| SW 16’ | SW Surround | **Tower**  **Surr/Rev** | R | |
| Solo | SW Reverb |
| CH/POS  -> | -> | -> | Solo | Solo Clean | **Bookshelf Clean** | Bookshelf -> | Adjust  Bookshelf Output Level | Control Hardware Effects | Bookshelf  Audio  -> | Bookshelf  Speakers | | 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/  Subwoofer  Audio  -> | Pedal  Speakers | 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 | | Adjusts  Levels by Division via MIDI Hardware Controls | Browser-Based Software:  Controls  Hardware, Reverb,  Compression, Other Effects | Applies Hardware Effects &  Routes Audio to Physical Speakers | Accurate as of 7 January 2020  © 2020 Matthew J. Reese | | | |