HD-550 Series Image Processor Technical Specifications

SonoScape

SonoScape Medical Corp.

1. Overview

The HD-550 series image processor (model: HD-550, HD-550Exp, HD-550Pro, HD-550S，HD-510 and HD-500Plus) adopts the GPU system to increase the device service ability three more times than the HD-500 series image processor, providing high-quality images for endoscopic diagnosis and treatment.

The iEndo platform based on the big data analysis, provides professional surgical research mode for users, which promotes the multi-win for AI engine developers, hospitals and patients.

The built-in workstation of the image processor is used to edit, manage and store patient list and print reports. It can well communicate with the network information system of a hospital.

System maintenance and upgrade, and performance enhancement can be achieved by updating software, thus to improve product value.

The image processor complies with the international and national standards.

2. Advanced Technologies

- High-definition video imaging (1080P)
- iEndo platform based on the big data analysis
- New GPU system

  The device performance can be increased three more times than before.
- Electronic filter function

  Used with the optical filter function of the light source manufactured by the manufacturer to realize the VIST feature.
- Automatic white balance
- Intelligent patient list management
- Multi-spectral imaging

3. Ports

- Equipotential terminal
- RS232 port
- Ethernet network port (ETHERNET)
- Video output ports

- DVI port (1)

- VGA port (1)

- S-Video port (1)

- CVBS port (1)

- SDI port (1)

- HDMI port (1)

- HD-SD port (1)

- Video print control port (PRINT CONTROL)

- Light control port (LIGHT CONTROL)

- Footswitch port (FOOT SW)

- Optical fiber cable port

- Power input port

- Main power supply port

- USB ports (5)

4. Technical Specifications

- White balance memory

- AGC

- Structural enhancement

    - The structural enhancement includes structural enhancement A and structural enhancement B.

    - The structural enhancement A enhances the vessel networks and the structural enhancement B enhancesthe micro-vessel network.

    - There are three modes (1 – 3) and the enhancement levels of each mode are level 0–15.

- Edge enhancement

  There are three enhancement modes (1 – 3) and the enhancement levels of each mode are level 0–15.

- Color tone adjustment

    - Red: level -15 – +15

    - Blue: level -15 – +15

    - Color saturation: level -15 – +15

- Color enhancement

  There are three enhancement modes (1 - 3) and the enhancement level of each mode is level 0–15.

- IRIS
    - Automatic mode

    - Peak mode

    - Average mode

- Zoom

  The zoom grades are mode 1– 3 (zoom step:

0.1) with the magnification 1–4.

- Image freeze/storage

    – Real time image freeze

    – Methods: the remote button, keyboard or footswitch

- Display modes: standard/full-screen

- CHb pseudo-color image display: on/off

- Local video record and playback

- Image processor workstation

    – Patient list management: body mark marking, report templates with different type settings, customizable common diagnosis glossary and report headline, editable report, report searching, selectable report fields, report preview and print, image, video and report export

    – The medical digital images can be acquired, archived, transmitted, displayed and searched, and it is compatible with DICOM standard protocol.

- Storage capacity: 500GB (standard configuration)

- The system version can be upgraded.

- Video signal output

  Connect a monitor to the DVI, SDI, CVBS, S-Video or VGA port to export videos.

5. Main Screen

- The patient information can be entered and modified on the main screen, including patient name (50 characters are allowed and the historical entered data can be memorized), age (range: 1–99), gender (male, female and blank), date of birth, applicants (32 characters are allowed and the historical entered data can be memorized), ID (32 characters are allowed and the historical entered data can be memorized) and exam number (a unique identification created by the system).

- The patient information can be displayed on the main screen, including patient name, age, gender and selectable information such as date of birth, applicant, ID and exam

number.

- Work modes include 10 public modes (1–10) and a private mode (P)

- Zoom level display

- Image enhancement value display

- Color enhancement value display

- Color tone adjustment value display

- The video function status switch indications include AGC, VIST, color tone adjustment, contrast, white balance and timer.

- Shortcut function icons displayed on the main screen include shortcut description and report edit.

- The hospital name can be displayed on the main screen.

- Videos can be recorded, saved and played.

- Thumbnails of the saved images and recorded videos can be displayed on the main screen and pages can be turned.

- The main screen can display all items, display the video and main switch only and hide the right frames or the left/right frames both.

6. System Settings

- Video parameters

  - Resolution: 1920×1080, 1920×1200 and auto

  - Video format: PAL and NTSC

  - The synchronous output of high-definition signals include DVI and VGA.

  - The synchronous output of standard-definition signals include CVBS and S-Video.

  - The patient information, video parameter, system time, endoscope information, hospital name and manufacturer logo can be overlaid on the standard definition signals.

  - Two information layout styles can be set.

  - Examples of the two styles can be reviewed.

  - The optional freeze time includes 0.5,1,2,3,4,5,6,7,8,9 and non.

  - PBP: open or close

- PBP position configuration: left up/down

- PBP size: big or small

- Image format: jpg and bmp

- Video format: mkv and flv

- Check videos to print saved image

- Video printer: close, USB and GPIO+ Video

- Video printer drive type: auto

- Several printer drives are available and the drive can be imported.

- The white balance memory is optional.

- Contour shape: round or octagonal

- General settings

  - The hospital name can be displayed on the main screen or hidden.

  - Time, date and manufacturer logo can be displayed in the full-screen mode.

  - The hospital logo can be imported and displayed on the report, and the image formats include jpg, bmp and png.

  - The optional information displayed on

the left side of the main screen includes name, gender, date of birth, age, applicant, ID or admission number or outpatient number) and exam number.

- Time format setting:

  - YYYY/MM/DD

  - MM/DD/YYYY

  - DD/MM/YYYY

  - YYYY/MM/DD

- Specific date/time settings

- Sixty-five time zones can be selected.

- The time service IP can be set.

- Time synchronization with the time service IP.

- The time synchronization can be enabled when powering on the device.

- Languages: Chinese, English, French, Polish, Korean, Portuguese, Spanish and Russian

- Contact us by the Wechat account and device information QR code.

- Contextual settings

- The patient information can be automatically matched.
- Report printer: USB printer or network printer
- Paper size: A4 (210mm×297mm) and Carta (216mm×279mm)
- The printer drive type can be set.
- The printer drive type can be imported.
- The network printer IP can be set and the network printer can be searched within the local area network.
- The settable printer parameters include brightness and Gama.
- The local IP can be set.
- The local Mac address can be viewed.

- DICOM settings
  - Basic settings
    - Station name
    - Local AE title
    - Timeout
    - Port
  - Storage settings
    - The storage server features can be enabled.
    - The image can be uploaded while it is saved.
    - Server name
    - Server IP
    - Port
    - AE title
  - Commitment storage
    - The commitment storage can be enabled.
    - Server name
    - Server IP
    - Port
    - AE title
  - Worklist
    - The Worklist server feature can be enabled.
    - Server name
    - Server IP
    - Port
    - AE title
    - Maximum results

- ➢ Requested Procedure Description
  - ⁃ MPPS
    - ➢ The MPPS can be enabled.
    - ➢ Server name
    - ➢ Server IP
    - ➢ Port
    - ➢ AE title
- AI (visible only with service permission)
  - ⁃ AI server
    - ➢ The AI server can be enabled.
    - ➢ AI server developer
    - ➢ Server name
    - ➢ Server IP
    - ➢ Port
  - ⁃ Off-line function
    - ➢ Videos can be imported and deleted.
    - ➢ Off-line mode

7. Mode Settings

- Modes include ten public mode and a private mode, and the private one can be bounded with the account.

- The image enhancement includes edge, structural A and structural B.
- The structural enhancement includes three adjustable modes and the adjusting range is level 0 –15.
- The edge enhancement includes three adjustable modes and the adjusting range is level 0 – 15.
- The color enhancement includes three adjustable modes and the adjusting range is level 0 – 15.
- The color tone (R/B/C) adjustment range is -15 – +15.
- ZOOM includes three modes and the adjustment range is 1 – 4 times (zoom step: 0.1).
- The customizable functions of the four remote buttons include freeze, zoom, VIST, IRIS, image enhancement, color enhancement, CHb pseudo color, transillumination mode, contrast enhancement, AGC, image size, image capture, video record and print, timer, PBP,

information display, one-key export and upload

- The functions of the left and right buttons can be customized through footswitch, including freeze, zoom, VIST, IRIS, image enhancement, color enhancement, CHb pseudo color, transillumination mode, contrast enhancement, AGC, image size, image capture, video record and print, timer, PBP, information display, one-key export and upload

- IRIS methods**:** auto, average and peak

- Auto save the present image parameters

- The contrast enhancement levels include low/medium/high.

8. Work Order List

- More than 10000 or up to 100000 optionally work orders can be createdand saved into the work order list.

- The work order list can be selected according to the exam items.

- The information in the work order list can be reedited, conducted or delete directly.

- The work list information can be displayedor hidden.

- The information in the work order includes patient name, gender, age, ID, applicant, pre-exam date and status.

- The work order list can be sorted according to the table title.

- The table title on the work order list can be displayed or hidden.

- The data search settings of the work order list include name, gender, age, ID, applicant and application time.

- Total number of the work order can be displayed below the list.

- View the DICOM queue

    - All datum in the DOCIM queue list can be sorted according to descending or ascending order by clicking the table title.

    - The DICOM queue can be searched through the patient name, ID, date, information type and status.

    - The search conditions can be reset.

- The datum in the DICOM queue can be refreshed.
- Resend the datum selected in the DICOM queue if failed to send them to the DICOM queue.

- The Worklist inquiry conditions can be set, including name, examination device, ID, accession number and pre-exam date.
- Fields in the work order list can be displayed or hidden.
- The work order list includes patient information and examination information.

9. Patient List

- The patient lists can be selected according to the examination items.
- The patient list information can be viewed, including video, image and report.
- Reports for each patient list can be generated.
- The patient information, diagnosis images, view of exam, exam conclusion and biopsy site are included in the report.

- Videos, images and reports of a specific patient list can be viewed.
- The image can be viewed and marked, and the marker types include dot, lower/upper-right arrows and lower/upper-left arrows.
- The exam can be canceled.
- The patient list datum can be exported.
- The images and reports of the patient lists can be uploaded.
- Conditional search can be applied for the patient list search and the search conditions include name, ID, doctor, status and exam date.
- The patient list can be deleted.
- The patient information in the patient list includes name, ID, exam date, doctor, endoscope model, status and exam number.
- The patient list statuses include printed, uploaded, examined and diagnosed.
- The order of the patient information is name, ID, exam date, doctor, endoscope model, status and exam number.

- View the DICOM queue

  - All datum in the DOCIM queue list can be sorted according to descending or ascending order by clicking the table title to sort.

  - The DICOM queue can be searched through the patient name, ID, date, information type and status.

  - The search conditions can be reset.

  - The datum in the DICOM queue can be refreshed.

  - Resend the datum selected in the DICOM queue if failed to send it to the DICOM queue.

- Report edit

  - The patient information can be edited.

  - The reports and images can be edited. (At most 10 images can be stored.)

  - Bodymarks and organ names can be added into the images in the report.

  - The exam type can be selected according to the present exam.

  - The view of exam, exam conclusion, biopsy site and suggestions can be edited.

  - Items can be directly selected from the glossary and can be filled into the view of exam and exam conclusion.

  - The items in the glossary can be edited.

  - The operations for the glossary include switching, adding, editing, copying and deleting items.

  - The exam items in the report can be switched.

  - The presently edited view of exam and exam conclusions can be saved into the glossary as new items.

  - Report templates can be selected and several reports can be printed for one time.

  - The report fields can be set.

  - Individualized titles can be set in the report template.

  - The report preview page can display 22 page scales.

10. Doctor List

- One hundred accounts can be created into the doctor list.

- Customer operations differ according to different account limitations: the admin account operations include adding, editing, deleting, and logging; the doctor account operations include editing and viewing.

- The doctor name, job ID, and title (including resident physician, physician, vice doctor and director physician), account, password, and private mode (used for loading private parameter settings when logging in the account) can be identified in a new account.

- The doctor list includes job ID, name, title and account.

- The order of the doctor list datum include job ID, name, title and account.

- Customer login methods include automatic login and account login, and the account logging has drop-down list and can also manually enter information.

11. Viewing the Endoscope Information

- The endoscope specifications can be viewed, including the endoscope model, inner diameter of the instrument channel, outer diameter of the distal end, insertion tube outer diameter, biopsy entrance position icon and the endoscope specifications icons including all the first four items.

- The endoscope information, including the date of manufacturer, endoscope series number, and service time can be viewed.

- The customer information including the contract number and annotations can be viewed.

12. Customer Service Interface

- The customer service interface can only be viewed after logging in with the customer service permission.

- This system can manage and control the prototypes, including the image processor management and control, as well as the

assorted endoscope management and control.

- The image processor management and control includes time and endoscope match management and control.

- The endoscope control includes the endoscope using time and assorted processor management and control.

- The system can be upgraded through USB drive.

- The video can be imported and looped.

- The QR code including the device and manufacturer information can be displayed.

- Data restore function

- One-key restore function

- The assorted light source information can be displayed, including the series number, present main lamp service time, and total service time of all main lamps.

- The endoscope series number and service time can be viewed.

- The image processor series number, the rest space, video record time and picture storage

number can be viewed.

13. Application Range

The image processor is used with the endoscope manufactured by the manufacturer. It is used to process endoscopic images in clinical diagnosis and supply power to the endoscope.

14. Size & Weight

- Size: 480±5mm (L) × 370±5mm (W) × 125±5mm (H)

- Weight: approx.11±1kg

15. Monitor (Optional)

- Color LCD: 24/26-inch

- Resolution: 1920×1080 and 1920×1200

- Video input ports

  - S-Video (1)

  - CVBS (1)

  - VGA (1)

  - DVI (1)

  - SDI (1)

- Video output ports: DVI (1) and SDI (1)

16. Compatible Device

- Light source:

  VLS-50D/VLS-50T/VLS-55Q/

  VLS-55T/VLS-51T/VLS-51D

- 550 series endoscopes:

  - EG-550 series video gastroscope

    (EG-550/EG-550L)

  - EC-550 series video colonoscope

    (EC-550/EC-550T/ EC-550L/T

    /EC-550L)

- 500 series endoscopes:

  - EG-500 series video gastroscope

    (EG-500/EG-500L)

  - EC-500 series video colonoscope

    (EC-500/EC-500T/ EC-500L/T

    /EC-500L)

- EB-500 video bronchoscope

- ENL-500 video rhinolaryngoscope

17. Safety Standards

- IEC 60601-1:2005+A1:2012

- IEC 60601-2-18:2009

- IEC 60601-1-2:2014

18. Environment Requirements

- Operating environment

  - Temperature: 0°C – +40°C

  - Relative humidity: 30% – 80% (non

    -condensing)

  - Atmosphere pressure: 700 hPa – 1060

    hPa

- Storage environment

  - Temperature: -5°C – +40°C

  - Relative humidity: 30% – 80% (non

    -condensing)

  - Atmosphere pressure: 700 hPa – 1060

    hPa

- Transportation environment

  - Temperature: -20°C – +55°C

  - Relative humidity: 20% – 90%

    (non-condensing)

  - Atmosphere pressure: 700 hPa –

    1060hPa

- Safety types

- – Type of protection against electric

    shock: Class I equipment

- – Degree of protection against electric

    shock: Type BF applied part

- Power supply requirements

    - – Input voltage: AC 100V–240V,

        50/60Hz

    - – Input power: 250VA

NOTE:

- The specifications of this product may change without any prior notification.

- Some products or features may not be available in some countries.

- Please contact the local distributor for more information.

Manufacturer: SonoScape Medical Corp.

Address: Room 201 & 202, 12th Building, Shenzhen Software Park Phase II, 1 Keji Middle 2nd

Road, Yuehai Subdistrict, Nanshan District, Shenzhen, 518057, Guangdong, China

Tel: +86-755-26722890

Fax: +86-755-26722850

E-mail: sonoscape@sonoscape.net

www.sonoscape.com