



Scoring & Timing Solution for Figure Skating



1. Introduction

This is a professional solution for LED scoreboard display in Figure Skating competition.

The system functions conform to international competition rules.

Match arrangement, real-time scoring & timing display, players' & referees' info display, rank statistics export & print, slow motion video record & playback, and advertising display can be realized through the coordination of Match Scoring System, Meet Management System, Video Arbitration System, etc.

1.1 System Architecture

The whole system is composed of several subsystems, including: Match Scoring System, Meet Management System and Video Arbitration System.

Each subsystem can not only work independently, but also work together to share the data.

It is flexible for customers to configure according to the actual application.

- **Match Scoring System**

Match Scoring System named ULTRA SCORE is composed of Ultra Score Software, Referee Scoring Software, SCB Viewer, Wireless Score Tablet, etc.

It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.

- **Meet Management System**

It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc.

Linking with Online Registration System and Match Scoring System, it can realize: participants management, match schedule, result management, court arrangement, rank statistics, etc.

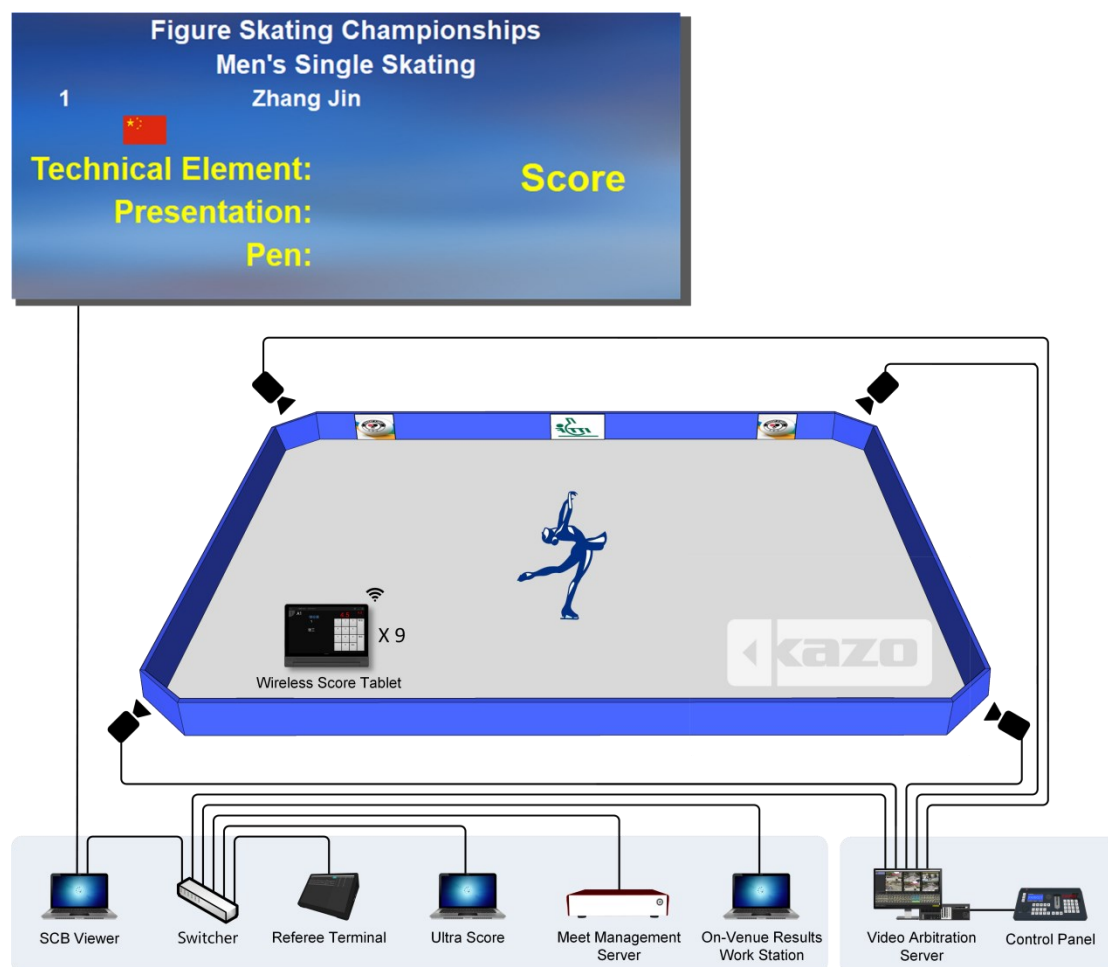
- **Video Arbitration System**

Video Arbitration System named PARROT is composed of video arbitration server, control panel and cameras.

It is operated by the referees during the match. When working with Match Scoring System, referee's score operation will be marked on the frame of video automatically, whilst playback them in slow motion with changes in speed.

It can be used to provide the technical support when dispute happens during the match so as to reduce the misjudging, to ensure fairness and justice of the match.

1.2 System Chart



System Description

- 1) **LAN:** A LAN is set up in the stadium. Connect the LED control PC, Ultra Score Terminal PC, Match Scoring & Timing Host, Referee Scoring & Timing Terminal, Meet Management Server, On-Venue Results Workstation and Printer to the LAN.
- 2) **LED Screen:** One or two LED screens are controlled by separate computers which connect with LED sending cards. Both of the LED screens can show the same contents or different contents as required.
- 3) **LCD TV:** Two LCD TVs are installed on both sides of the field and controlled by the Ultra Score display software for single field score display.
- 4) **Wireless Score Tablet:** 9 Wireless Score Tablets are used together with Ultra Score software for referee scoring.
- 5) **Referee Scoring Software:** It is installed in the court side referee seat, which can monitor the scoring of referees in multiple venues in real time and correct unreasonable scoring.
- 6) **Meet Management Server:** It is the core data processing equipment which is installed in the Technical Table and connected to the LAN by network cable.

1.3 Product Configuration (for one court)

Product	Type	Qt.
Match Scoring System		
Ultra Score Software	Standard Network Edition Support: Figure Skating	1
Referee Terminal	KS-RETM	1
Score Display Software	SCB VIEWER	1
Wireless Score Tablet	KS-GC14-I11	9
Wireless Score Tablet (back up)	KS-GC14-I11	1
Meet Management Server	KS-MMS-MINI	1
PC	/	2
Printer	/	1
Video Arbitration System		
Video Arbitration Server	KS-PARROT-2C	1
Control Panel	KS-PARROT-CP	1
HD Camera	KS-PARROT-CAMERA	2
Tripod for camera	TRIPOD STANDARD	2
SDI Cable	CABLE-SDI-15	2
Monitor	Dell	1

2. Specification for products

2.1 Ultra Score Software

Products	Details
Ultra Score software	<ul style="list-style-type: none">◆ Standalone edition◆ Supports: Figure Skating◆ Including 1 dongle
Ultra Score software	<ul style="list-style-type: none">◆ Standard network edition (Terminal + 1 Display)◆ Supports: Figure Skating◆ English version◆ Including 1 dongle
Ultra Score software	<ul style="list-style-type: none">◆ Professional Network edition (Terminal + Referee + 2 Display)◆ Supports: Figure Skating◆ English version◆ Including 1 dongle

Difference:

Standalone Edition:

Match management, Scoring, and Media display functions, all in one installed on a PC. Referee must do operation on the PC for display directly.

It is suitable for the stadium where has just one screen, which doesn't have strict needs of the scoring and timing accuracy.

Network Standard Edition:

Score terminal and media player functions can be installed on 2 PCs respectively. So that one independent PC can be setup on the courtside special for referee's operation, the other PC running as media player to manage the LED display.

It is suitable for the stadium where has one screen, needs to do the scoring and timing on the courtside.

Network Professional Edition:

Except the function of score terminal, 1-3 media players can be equipped on PCs separately, in order to display different contents on several LED screens.

It is suitable for the stadium where has more than 2 screens where referee need to do scoring on the courtside and LED screens need to display different contents separately. (For example, one LED screen is for scoreboard and another is for advertising or player info).

Scoring interface for figure skating

Welcome:

Figure Skating Championships
Men Free Skate
1
China
Yan Han

Order:

Figure Skating Championships
Men Free Skate

	Team	Athlete
1	China	Yan Han
2	China	Jin Boyang
3	China	Song Nan
4	China	Guan Yuhang
5	China	Zhang He
6	China	Liu Jiaxing

Score:

Figure Skating Championships
Men Free Skate

1	China	Yan Han		
			Technical Element:	35.56
			Presentation:	85.50
			Deduction:	
				Total
				121.06

Rank:

Figure Skating Championships			
Men Free Skate			
Team	Athlete	Score	Rank

Features

- (1) Professional scoreboard display: Scoring and timing operation, layout of scoreboard can meet international game rules.
- (2) Match management: Information of match, team, team members and coaches can be saved in advance. And referee's scoring operation during the match can be recorded and output.
- (3) Scoring functions: Include operation and display of teams and players' point, foul and substitutions.
- (4) Timing functions: Include operation and display of game time, pause, break time, count down time and system time.
- (5) Convenient operation feeling: Referees can do operation on a special score console as well as by using shortcuts on the keyboard.
- (6) Powerful media player: Kinds of media formats are supported. It is easy to switch between the scoreboard and video.
- (7) Notification: Rolling to display short notice on the screen which allows to set the speed, colors, fonts freely.
- (8) Customization: All contents on the scoreboard including fonts, color and layout can be modified to meet clients' needs.
- (9) Self-adaptation: With easy configuration, score information can be displayed on kinds of LED and LCD screen by using this system which can adjust the layout to meet any sizes of screen.
- (10) Security: Auto backup function will help you recover the match immediately from the computer fault.

2.2 Score Display Software

Products	Detail
Score Display Software	<p>Type: SCB VIEWER Support: Rhythmic Gymnastics Functions:</p> <ul style="list-style-type: none"> ◆ Layout of scoreboard can meet international game rules. ◆ All contents on the scoreboard including fonts, color and layout can be modified to meet clients' needs. ◆ Used for displaying player information, score and bureau score of a single court. ◆ Used for displaying player information, score and bureau score of multiple sites. ◆ The summary display screen can automatically adjust the display layout according to the competition process. ◆ The picture is updated in real time according to the referee's operation. ◆ Automatic data backup. In case of computer failure or power failure, the previous screen will be restored after restart.



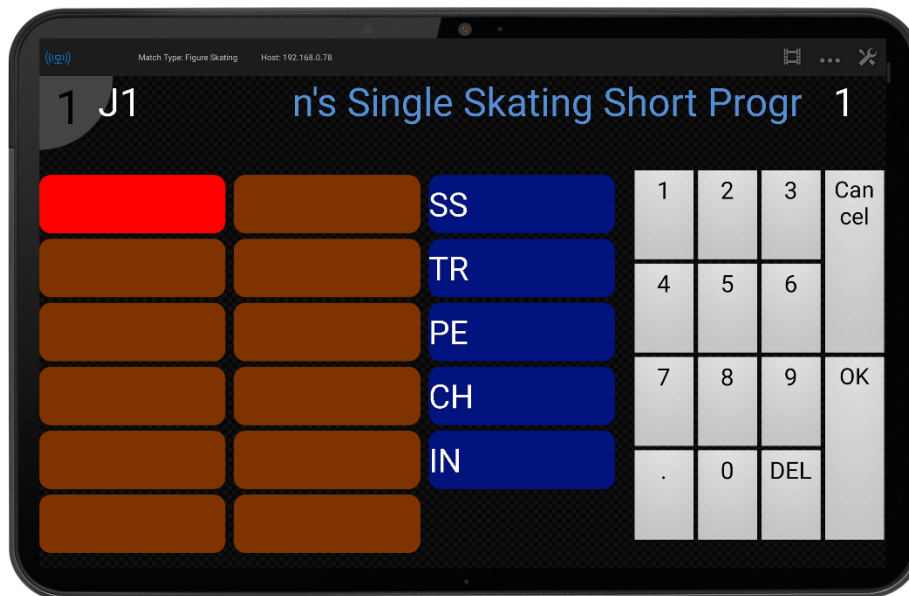
2.3 Referee Terminal

Products	Details
Referee Terminal	<p>Type: KS-RETM Size: 281 x 173 x 39 (mm) Touch LCD: 11.6 inch Resolution: 1920*1080 OS: WIN 10 Communication: LAN / WLAN Hard Disk: SSD 180GB RAM: 8GB Video Output: HDMI*1</p> <ul style="list-style-type: none"> ◆ Monitor the scores of judges on the court in real time. ◆ Modify or remind the unreasonable grades. ◆ Achieve the overall control of the display score. ◆ View the current real-time ranking info.



2.4 Wireless Score Tablet

Products	Details
<p>Wireless Score Tablet</p>	<p>Type: KS-GC14-I11</p> <ul style="list-style-type: none"> ◆ Screen: 11"inch ◆ Pixel: 1920*1200IPS ◆ Ram: 6GB ◆ Storage: 128GB ◆ Battery: 8000mAh ◆ System: Android ◆ Supports: Figure-skating ◆ Communication: WIFI ◆ Full colored touch screen

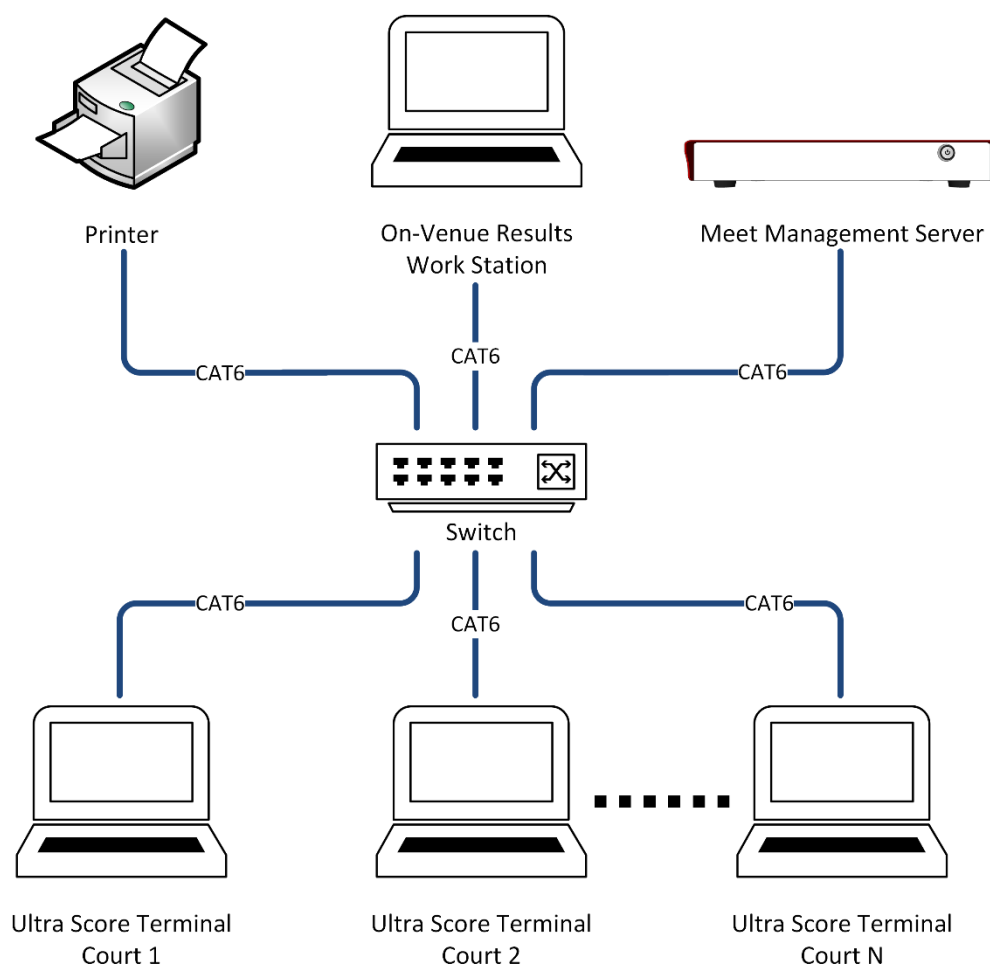


2.5 Meet Management System

It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc. Linking with Online Registration System, Match Scoring System and Basketball Stats System, it can realize:

- 1) **Participants Management:** Information management of players, teams and referees. Both import and input registration form are available. And auto generate the order form.
- 2) **Match Schedule:** Auto draw the players' lots. Multi-project arrangement make the schedule more smoothly. Auto generate the bracket, order form and round form.
- 3) **Result Management:** Receive or record the results. Determine the players' rank, admission or elimination at each stage. Print the results announcement and send to the LED display system, TV broadcasting system and comprehensive meet manage system.
- 4) **Technical Statistics Arrangement:** Combine with the basketball stats software, it can summarize the info of teams' score, teams' timeout, teams' foul, players' substitution, players' foul, players' comprehensive results, and generate the integrated report.

2.5.1 System Diagram



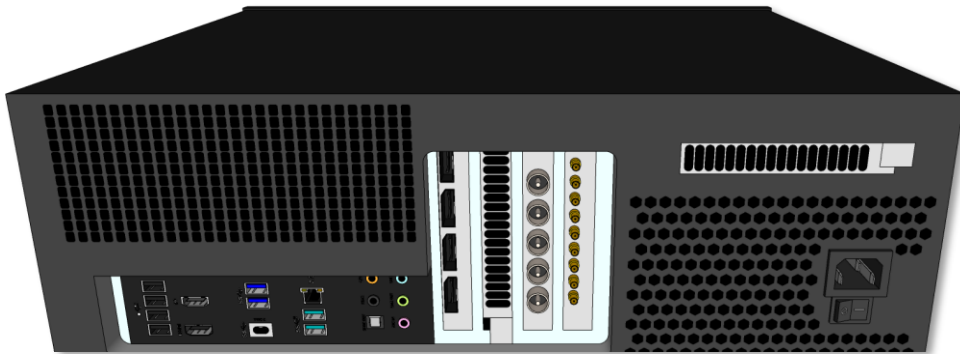
2.5.2 Meet Management Server

Products	Details
Meet Management Server	<p>Type: KS-MMS-MINI Size: 260x135x35 (mm) Weight: 1.0 KG Input Voltage: 12V DC RAM: 4GB CPU: Intel J3160 Hard Disk: 64G Communication: LAN*1 Port: VGA*1, DP*1, USB*2</p> <p>Features:</p> <ul style="list-style-type: none">● Multi-court arrangement, auto generate the order form.● Multi-project arrangement, make the schedule more smoothly.● Monitor the status of each court in real time, including the current field, rotation and player info.● Court adjustment, can manually modify the match court and session info.● Summary and print integrated report.



2.6 Video Arbitration Server

Products	Details
Video Arbitration Server	Type: KS-PARROT-2C/4C/6C/8C Video Input: 2/4/6/8 channels input synchronously; Input port: SDI; Output port: DP*2; Video Format: 1080P; Recording capacity: ≥ 10 hours; Multi-screen monitoring: supported; Weight: 8kg.



Software interface



Device Specification

Type	KS-PARROT-2C/4C/6C/8C
Size	485x480x90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	DP*2
Environmental	
Operating Temp	-5°C~45°C
Storage Temp	-40°C~80°C
Relative Humidity	5%~95%, non-condensing
Input Voltage	AC 100V~240V
Functions	
<ul style="list-style-type: none">● Nonstop video recording in the background: 2/4/6/8 channels of HD video are recorded simultaneously in the background, nonstop for 10 hours. Video retrieval and playback is unaffected.● Synch-playback of multi-channel video: Supports playback mode of single channel video in full screen and multi-angle video in 2/4/6/8 windows.● Speed change in slow motion: support 50 frame/s video playback and capture motion in a grid of 0.02s.● Video event query: video stream can be divided into several video events, storing in the event list, which can be renamed for retrieve easily.● Video segment marker: Important or controversial moments can be marked in video stream which will be replayed quickly when clicking the marked records.● Video signal output: provides 2 video output signals, one of which is for preview, the other of which can be connected to LED/LCD display for live slow motion replay.	

2.7 Control Panel

Products	Details
Control Panel	<p>Type: KS-PARROT-CP</p> <p>Function:</p> <ul style="list-style-type: none"> ◆ Support one touch replay, deferred replay, in/out replay. ◆ Preset speed button. ◆ T-Bar for dynamic slow motion. ◆ Professional dynamic jog wheel. ◆ Key to mark the last 10s/20s of the video content. ◆ Flexible select the marked video and playback.



Device Specification

Type	KS-PARROT-CP
Size	365 x 200 x 98 (mm)
Net Weight	1 KG
Cabinet	Iron
Display	Color LCD(4.3Inch)
Sound	None
Communication	
USB	≤5m
RS232	≤10m
Environmental	
Operating Temp	-5~45°C
Relative Humidity	5~95 %, non-condensing
Storage Temp	-40~80°C
Input Voltage	AC 100V-240V
Total Power	15W

2.8 HD Camera

Products	Details
HD Camera	Type: KS-PARROT-CAMERA



Device Specification

Product Type	KS-PARROT-CAMERA
Video output	3G-SDI
Effective pixels	3.0 million
Max Resolution	1920*1080
Max Frame rate	60FPS
Sensor	CMOS
Focal length	4.2MM
Size	62.5*50*50MM