



Scoring & Timing Solution for Ice Speed Skating



1. Introduction

This is a professional timing program for Ice Speed Skating.

Through the cooperation of Timing Software, Chip Timing Host, Chip Timing, Detection loop, Match Timing Software, Automatic Starting System, Photo Finish Camera, Meet Management Server and other systems, using high-speed color CCD digital camera and advanced image data processing technology, the timing accuracy of the equipment meets the requirements of professional competitions, with high timing accuracy, fast and accurate interpretation, strong stability It has the characteristics of simple operation, convenient carrying and installation, and less consumables.

1.1 System Architecture

The whole system is composed of several subsystems, including: Chip Timing System, Terminal Timing System and Meet Management Server.

Each subsystem can work independently or share data cooperatively. Customers can configure flexibly according to actual application requirements.

- **Chip Timing System**

The Chip Timing System consists of Chip Timing Host, Chip Timing, Detection loop and other timing and scoring equipment.

- **Terminal Timing System**

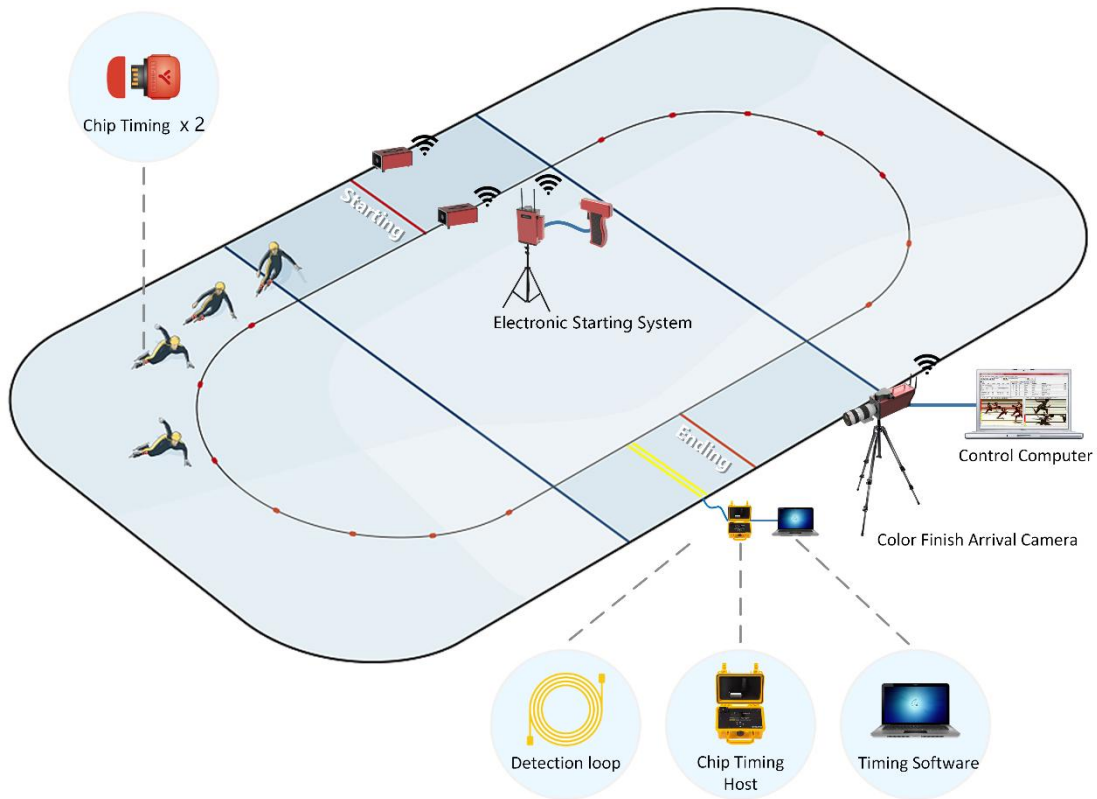
The Terminal Timing System consists of Match Timing Software, Automatic Starting System, Colorful Photo Finish Camera and other equipment.

- **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: participants management, match schedule, result management, technical statistics, court arrangement, rank statistics, etc.

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, Basketball Stats Workstation, 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) **Chip Timing Host:** It is installed on the referee's bench, and controls the software computer through wired network connection, so as to send orders for timing. It can convert the signal of the timing chip into the ID information of the contestant and the precise time of passing the detection loop.
- 4) **Detection Loop:** Connect the timing chip host, transmit an activation signal to activate the timing chip, and receive the signals transmitted by all the timing chips, which are embedded in the end line of the sports field.
- 5) **Match Timing Software:** Register the list of players for each event, and the time and score will be displayed in real time.
- 6) **Terminal Timing System:** Timing accuracy: 0.001 second, 0.0005 second, 0.0002 second. It supports automatic image exposure processing, supports positioning of sprint images, and supports frontal capture of sprinter's chest number cloth.
- 7) **Automatic Starting System:** It supports an electronic starting gun with a maximum starting distance of 1000 meters and a wireless starting button.
- 8) **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

Products	Type	Number
Match Timing Software	ULTRASCORE STANDALONE	1
Automatic Starting System	KS-STM100	1
Colorful Photo Finish Camera	KS-PHFC10	1
Black & White Photo Finish Camera (optional)	KS-PHFWB10	1
Meet Management Server	KS-MMS-MINI	1

2. Specification for products

2.1 Match Timing Software

Products	Details
Match Timing Software	<p>Operating system: support win7, 10, 32 / 64 bit systems</p> <p>Function:</p> <p>Support the simultaneous operation of shooting and score interpretation;</p> <p>When the computer crashes and the software is restarted, the timing can be restored with one click;</p> <p>The accuracy of score output is 0.0001s ~ 1s;</p> <p>multiple orders and reset the order time;</p> <ul style="list-style-type: none"> ◆ Support zero time calibration function; ◆ Support stop timing to continue shooting; ◆ Support automatic image clipping and filtering redundant images; ◆ Support large screen display of scores and images; ◆ Support automatic scoring; ◆ Support the printing of transcripts and the generation of Excel sheets and TXT documents; ◆ Support selecting wrong groups and associating images with corresponding groups after the competition.

Software interface:



2.2 Automatic Starting System

Products	Details
Automatic Starting System	<p>Supporting items: Track and Field, Dragon Boat, Kayak, Horse Racing, Dog Racing, Bicycle, Racing, UAV, Short Track Speed Skating, Long Track Speed Skating, Skiing and other competitions.</p> <p>Including starting host*1, electronic starting gun*1, wireless speaker*2, safety box*1.</p> <p>Size of starting host: 23*13.5*5.5(cm), weight: 1.5kg</p> <p>Size of speaker: 31*26* 33(cm), weight: 7kg</p> <p>Function:</p> <ul style="list-style-type: none"> ◆ Support electronic starting gun; ◆ The starting distance is up to 1000 meters; ◆ Support wireless start button; ◆ Support microphone voice input; ◆ Voice and starting shot dual output; ◆ The host can work continuously for 8 hours without external power; ◆ The sound can work continuously for 8 hours without external power; ◆ Support zero calibration of electric meter; ◆ Support multiple orders and multiple trigger record storage.

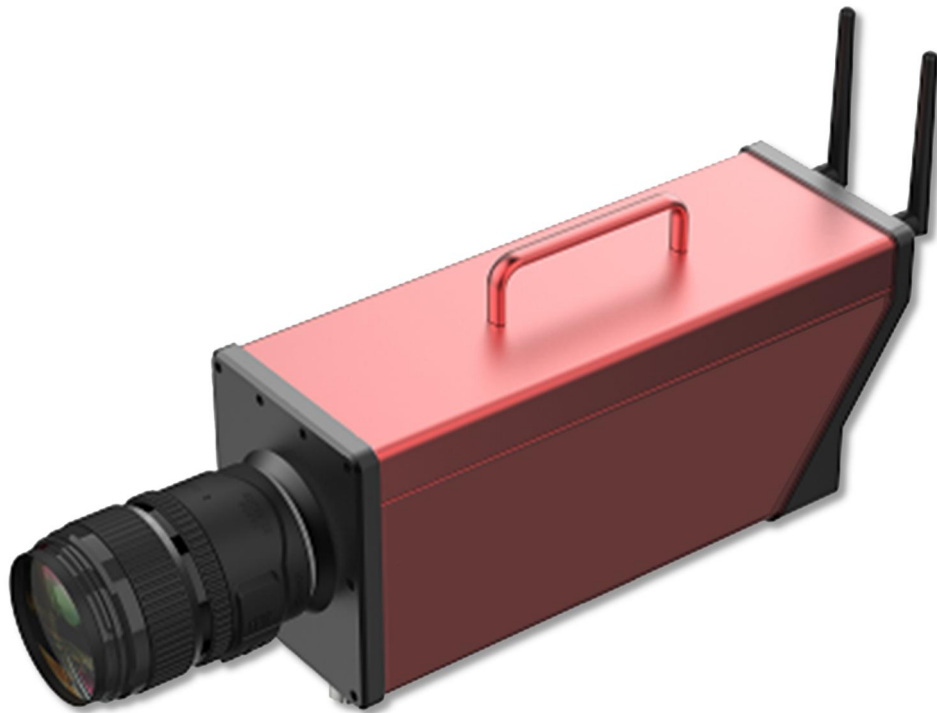
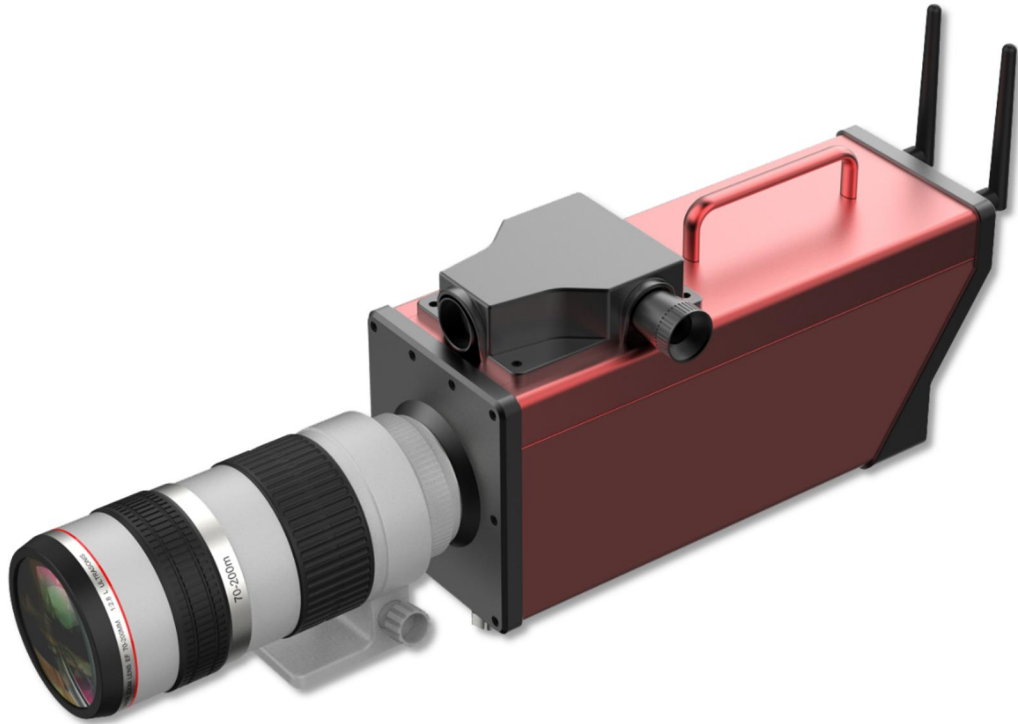


2.3 Colorful Photo Finish Camera

Products	Details
Colorful Photo Finish Camera	<p>Supporting items: Track and Field, Horse Racing, Dog Racing, Bicycle, Racing, UAV</p> <p>Frame rate: 1000 frames /s, 2000 frames /s, 5000 frames /s.</p> <p>Timing accuracy: 0.001 second, 0.0005 second, 0.0002 second</p> <p>System error: < 0.0002s</p> <p>Cumulative error: 0.5ppm</p> <p>Image display resolution: 1024 × 1024</p> <p>Color: full color image</p> <p>Host size: 29.8*14*15.6(cm)</p> <p>Weight: 2kg</p> <p>Power adapter: 14.8-16.8v/1-2a</p> <p>Communication interface: Gigabit Ethernet port</p> <p>Wireless sending transmission distance: < = 1000m</p> <p>Battery type: lithium battery</p> <p>Battery life: 4 hours at full power</p> <p>Operating environment:</p> <p>Ambient temperature range: - 10 °C ~ 60 °C , relative humidity range: 10% ~ 80%</p> <p>Storage conditions:</p> <p>Temperature range: 0 °C ~ 40 °C , humidity range: 10% ~ 60%</p> <p>Closure length of tripod: 61cm</p> <p>Maximum height of tripod: 170cm</p> <p>Net weight of tripod: 2.5kg</p> <p>Size of safety box: 64.2*37.9*23(cm)</p> <p>Functions:</p> <ul style="list-style-type: none"> ◆ Support image automatic exposure processing; ◆ Support positioning athlete sprint image; ◆ Support front capture sprinter chest number cloth; ◆ Support multiple orders and reset the order time; ◆ Support zero time calibration function; ◆ Support stop timing to continue shooting; ◆ Support image local magnification function; ◆ Automatic image clipping to filter redundant images; ◆ Support remote interpretation: one computer for shooting and another computer for interpretation; ◆ Support thumbnail display to quickly locate athletes; ◆ Support video playback; ◆ Support PNG and BMP image generation.

Black & White Photo Finish Camera (optional)

Products	Details
Black & White Photo Finish Camera (optional)	<p>Supporting items: Track and Field, Horse Racing, Dog Racing, Bicycle, Racing, UAV</p> <p>Shooting frame rate: 1000 frames /s.</p> <p>Timing accuracy: 0.001 seconds</p> <p>System error: < 0.0002s</p> <p>Cumulative error: 0.5ppm</p> <p>Image display resolution: 512 × 1024</p> <p>Color: 8-bit black and white image</p> <p>Host size: 29.8*14*15.6(cm)</p> <p>Weight: 2kg</p> <p>Power adapter: 14.8-16.8v/1-2a</p> <p>Communication interface: Gigabit Ethernet port</p> <p>Wireless sending transmission distance: < = 500m</p> <p>Battery type: lithium battery</p> <p>Battery life: 4 hours at full power</p> <p>Operating environment: ambient temperature range: - 10 °C ~ 60 °C, relative humidity range: 10% ~ 80%</p> <p>Storage conditions: temperature range: 0 °C ~ 40 °C, humidity range: 10% ~ 60%</p> <p>Closure length of tripod: 61cm</p> <p>Maximum height of tripod: 170cm</p> <p>Net weight of tripod: 2.5kg</p> <p>Size of safety box: 64.2*37.9*23(cm)</p> <p>Functions:</p> <ul style="list-style-type: none">◆ Support image automatic exposure processing;◆ Support positioning athlete sprint image;◆ Support front capture sprinter chest number cloth;◆ Support multiple orders and reset the order time;◆ Support zero time calibration function;◆ Support stop timing to continue shooting;◆ Support image local magnification function;◆ Automatic image clipping to filter redundant images;◆ Support remote interpretation: one computer for shooting and another computer for interpretation;◆ Support thumbnail display to quickly locate athletes;◆ Support video playback;◆ Support PNG and BMP image generation.

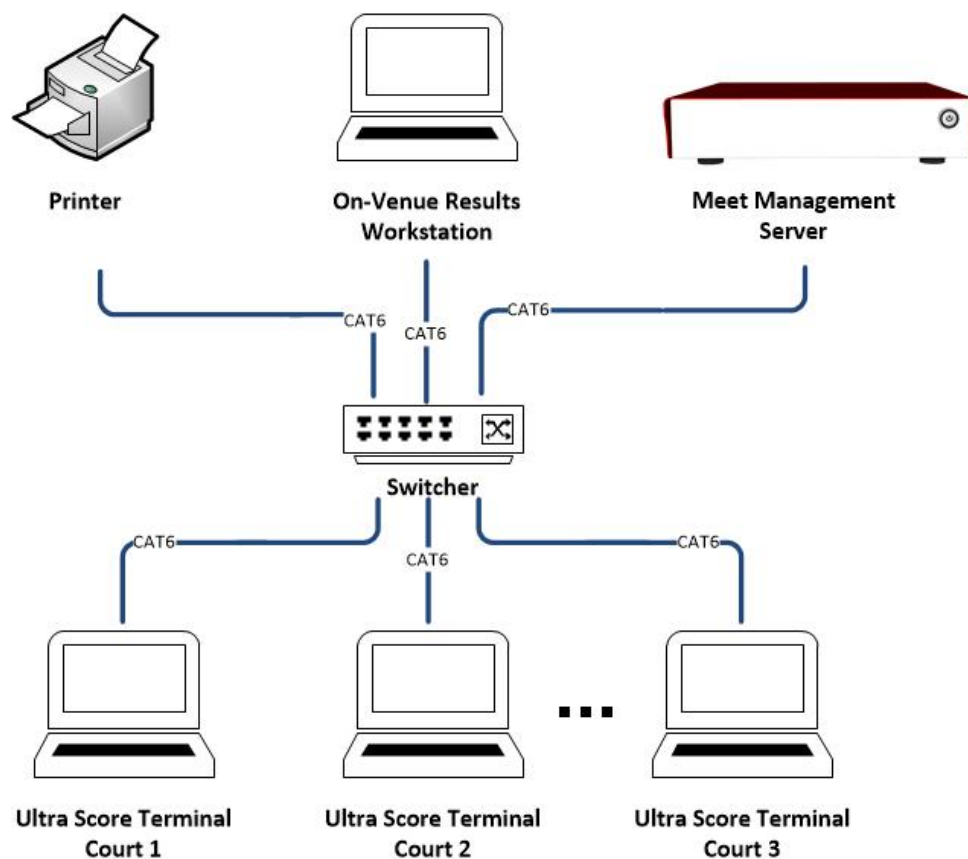


2.4 Meet Management System

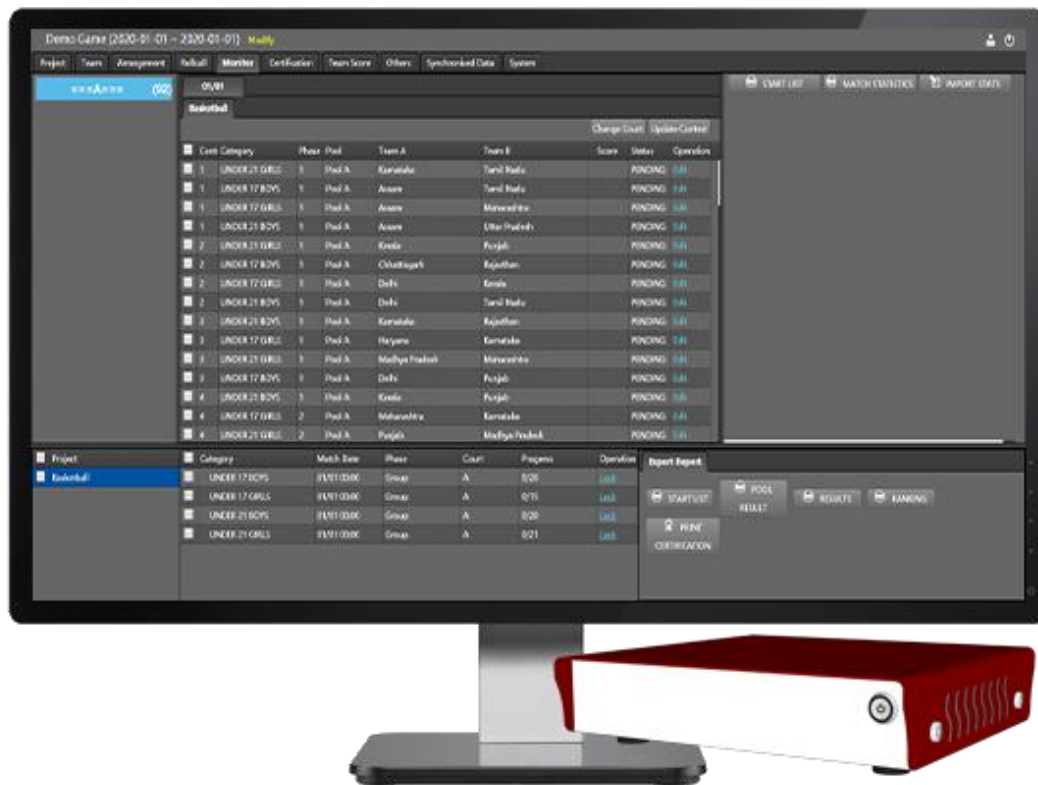
It is composed of Meet Management Server, On-Venue Results Workstation, Printer, etc. Linking with Online Registration System, Match Scoring System and Basketball Stats System, it can realize:

- 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.

2.4.1 System Diagram



2.4.2 Meet Management Server



Item	Details	Item	Details
Product	Meet Management Server	Input Voltage	12V DC
Type	KS-MMS-MINI	Weight	1.0 KG
Size	170x150x35 (mm)	Port	VGA*1, DP*1, USB*2
Functions	<ol style="list-style-type: none"> 1. Easy to create a match, and import the match entry information. 2. Arrangement the match with variants of game systems. Including elimination, round-robin, etc. 3. Provide the match information to the scoring software on each venue/court. 4. Gather the real time score and statistics information from the scoring software. Monitor the progress of the match. 5. Generate standard reports for the match, including start-list, results, combined results, ranking, etc. 6. Print certifications with adjustable print templates. 7. Print the team score report. 8. Open interface with ODF compatible data feed. 		