Scoring & Timing Solution for BMX Freestyle

1. Introduction

This is a professional solution for LED scoreboard display in BMX Freestyle 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, Score Tablet, Match Scoring & Timing Host, Electronic Buzzer, SCB Viewer, 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
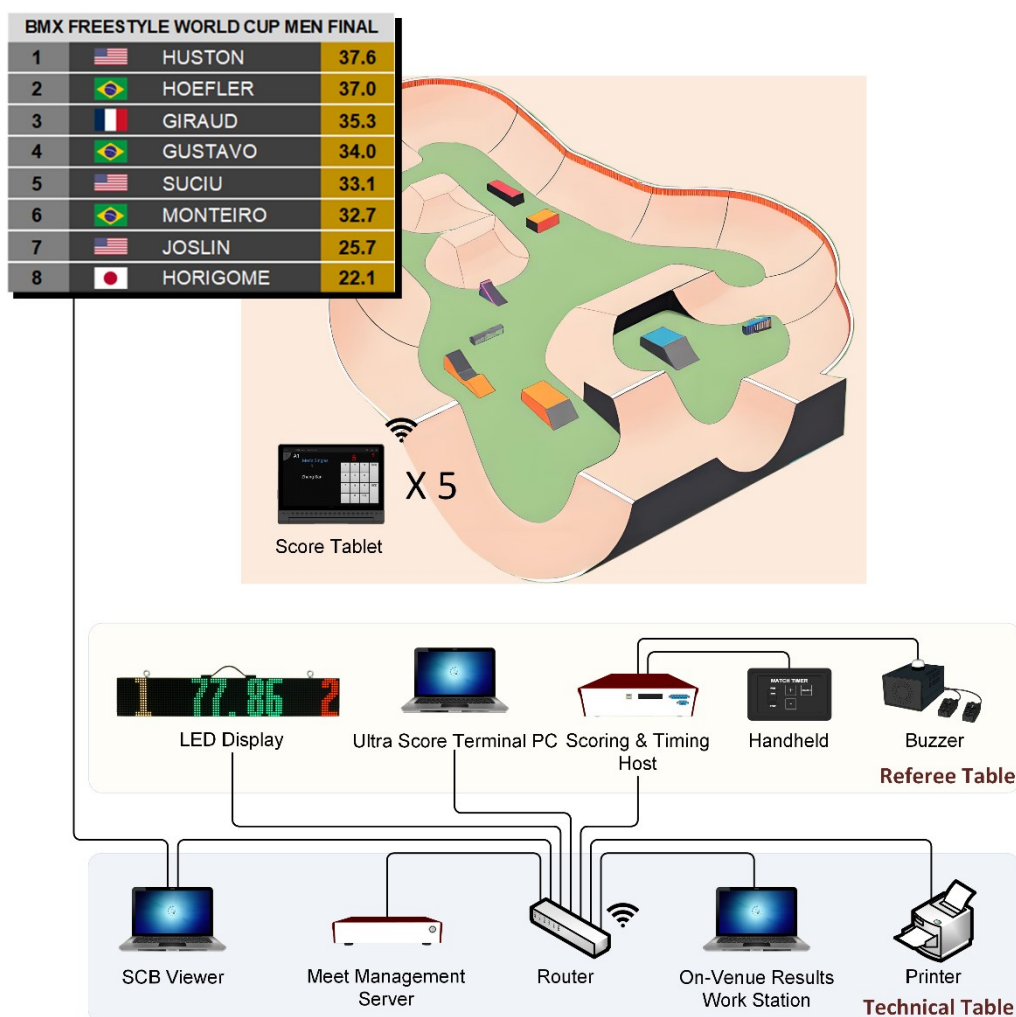
System Description

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) **Wireless Score Tablet:** 5 Wireless Score Tablets are used together with Ultra Score software for referee scoring and timing.

4) **Match Scoring & Timing Host**: Installed at the referee table, it serves as the core timing and scoring device and can function as a hot backup host. The timing handheld and electronic buzzer are connected to the host unit via dedicated cables in sequence.

5) **Electronic Buzzer**:

6) **LED Display:** Connected to the LAN via an ethernet cable, it displays the athletes' number and competition countdown during the event, and shows the athletes' number and score after the event.

7) **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	Model	Qt.
Match Scoring System		
Ultra Score Software	Standalone Edition Support: BMX Freestyle	1
Score Display Software	SCB VIEWER	1
Score Tablet	KS-GC14-I11	5
Match Scoring & Timing Host	KS-MONSTER	1
Electronic Buzzer	KS-BUZR/D	1
LED Display	KS-SCRN-LED960160-S	
Meet Management Server	KS-MMS-MINI	1
PC	/	2
Printer	/	1

2. Specification for products

2.1 Ultra Score Software

Products	Details
Ultra Score software	◆ Standalone edition ◆ Supports: BMX Freestyle ◆ Including 1 dongle
Ultra Score software	◆ Standard network edition (Terminal + 1 Display) ◆ Supports: BMX Freestyle ◆ English version ◆ Including 1 dongle
Ultra Score software	◆ Professional Network edition (Terminal + Referee + 2 Display) ◆ Supports: BMX Freestyle ◆ 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 BMX Freestyle

Kazo Vision
WEB: http://www.kazovision.com   MAIL: sales@kazovision.com

2.2 Score Display Software

Products	Detail
Score Display Software	Model: SCB VIEWER Support: BMX Freestyle Functions: ◆ 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.

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2.3 Wireless Score Tablet

Products	Details
Wireless Score Tablet	◆ Model: KS-GC14-I11 ◆ Screen: 11"inch ◆ Pixel: 1920*1200IPS ◆ Ram: 6GB ◆ Storage: 128GB ◆ Battery: 8000mAh ◆ System: Android ◆ Supports: BMX Freestyle ◆ Communication: WIFI ◆ Full colored touch screen Functions: Including one license of UltraScore Controller software Easy score operation by touching screen. Must work with Ultra Score software.

2.4 Match Scoring & Timing Host
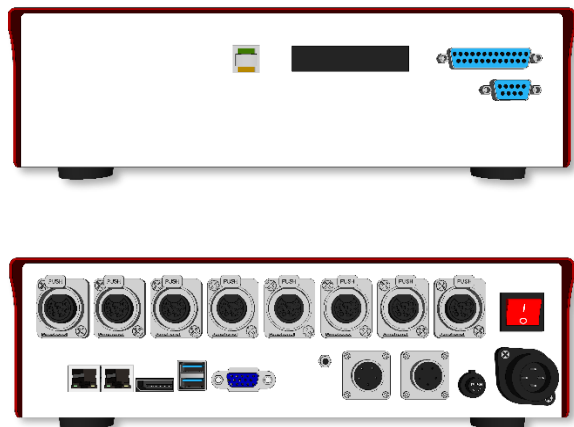
Match Scoring & Timing Host

Model	KS-MONSTER
Dimension	260 x 280 x 80 (mm)
Support	BMX Freestyle
Other	Supports hot switching between the main and backup system.

Match Timer Handheld

Model	KS-G-MT
Dimension	120x80x25(mm)
Communication	Wired
Function	Match timer start, pause, adjustment and buzzer control.

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Item	Details	Item	Details
Product	Match Scoring & Timing Host	Model	KS-MONSTER
Dimension	260 x 280 x 80 (mm)	Net Weight	3 KG
Material		Power Capacity	60W
CPU	Intel J3160	Timing Accuracy	<=10ms
Communication	RJ45×2	Hard Disk	64GB
Video Output	VGA×1, DP×1	Input Voltage	AC 100~240V
Working Temp	0-60℃	Relative Humidity	5%-95%, non-condensing
Port	G-Port×8, Shot Clock port×2, Audio×1, USB×2, Network port×1		
Accessories	Match Timer Handheld *1		
Supporting Games	BMX Freestyle		
Functions			

1. Timer functions: Timing in minute, second, tenth of a second, 14S & 24S and timing in count up and count down, start, pause, reset, correct are available.
2. Scoring functions: Modify the score of the team and player.
3. Penalty functions: Team foul control, Player foul control, Player penalty time control, Substitution control, yellow/red card control, etc.
4. Supports match rule setup.
5. Synchronous control of Electronic Buzzer.
6. Provides buzzer sound output, which can be connected to the venue's public address system or speakers.
7. Supports hot switching of the main and backup servers. In case of the main server fails, just manually switch to the backup server to ensure the data intact. And in case of power failure, the previous screen will be restored after restarting.
8. Supports real-time data output, which can be used for live broadcast.
9. Monitoring the status of scoring devices, providing convenient fault diagnosis (with a separate monitor).
10. Anti-loose port ensures the safety of match data.

2.5 Electronic Buzzer

Products	Details
Electronic Buzzer	◆ Model: KS-BUZR/D ◆ Size: 200x150x150 (mm) ◆ Input voltage: AC 110-240V ◆ Power: 35W ◆ Buzzer: 110dB ◆ Color: Black ◆ Weight: 1KG Functions: The host can support 2 controllers. With sound and light prompt functions at the same time. Buzzer for tips as the competition required.

Kazo Vision
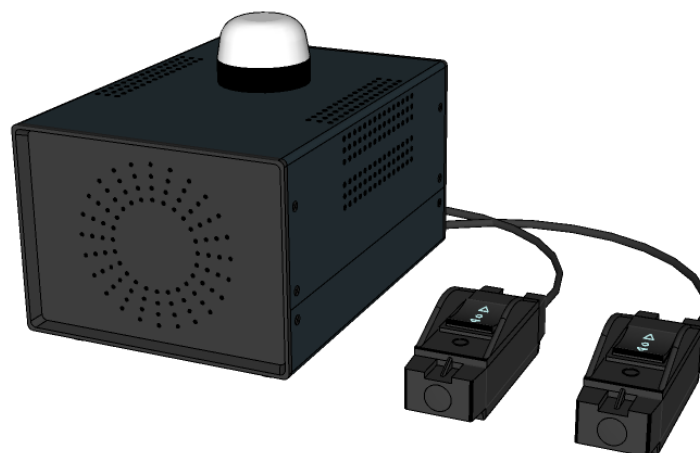
2.6 LED Display

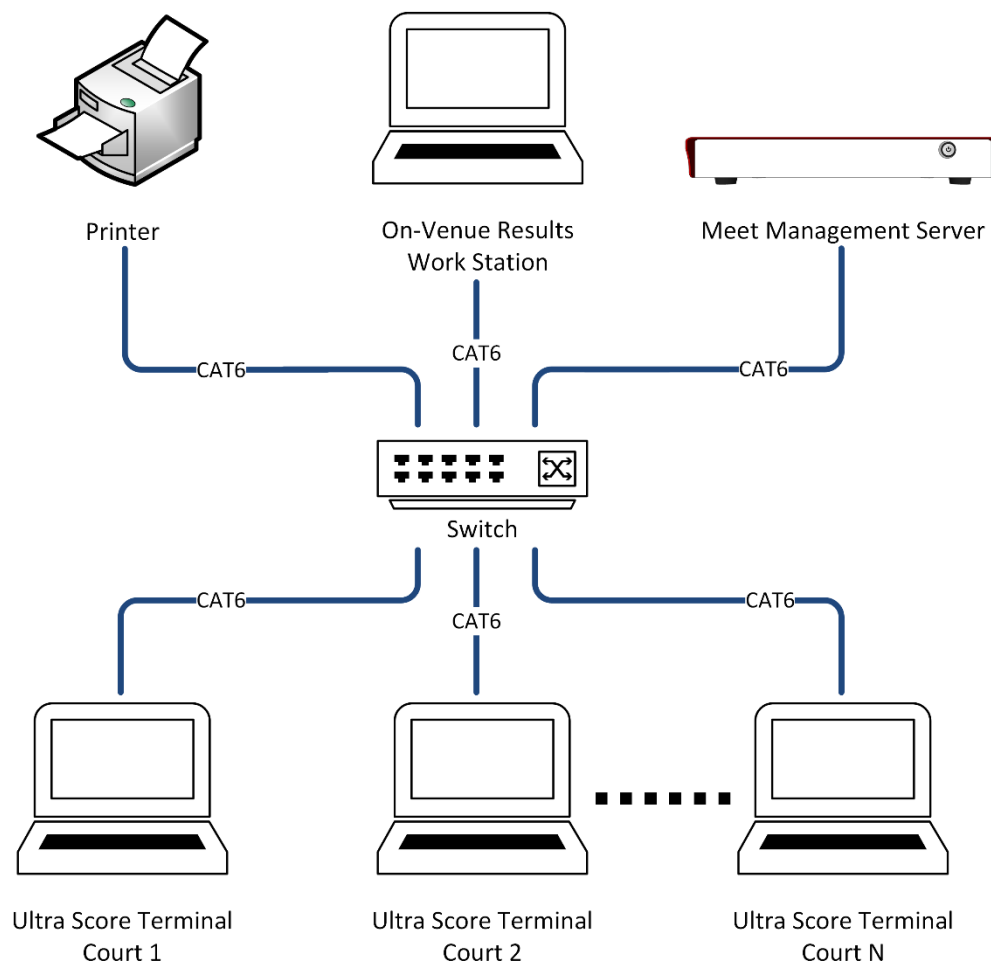| Item	Details
LED Display	Model: KS-SCRN-LED960160-S Size: 960*160*100(mm) Material: Aluminum Input: 12V DC Function: ◆ Must be used together with Show Jumping Scoring Software. ◆ Display athlete's number, competition countdown and score.

2.7 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.

2.7.1 System Diagram

2.7.2 Meet Management Server

Products	Details
Meet Management Server	Model: 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 Features: ● 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.

2.8 Video Arbitration Server

Products	Details
Video Arbitration Server	Model: 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

Kazo Vision
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Device Specification

Model	KS-PARROT-2C/4C/6C/8C
Size	485x480×90(mm)
Net Weight	8 KG
Color	Black
Cabinet	Iron
Interface	
Input	SDI*2/4/6/8
Output	DP*2
Environmental	
Operating Temp	-5℃～45℃
Storage Temp	-40℃～80℃
Relative Humidity	5%～95%, non-condensing
Input Voltage	AC 100V~240V
Functions	

- **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.

2.9 Control Panel

Products	Details
Control Panel	Model: KS-PARROT-CP Function: ◆ 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

Model	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℃
Relative Humidity	5~95 %, non-condensing
Storage Temp	-40~80°C
Input Voltage	AC 100V-240V
Total Power	15W

2.10 HD Camera

Products	Details
HD Camera	Model: KS-PARROT-CAMERA

Device Specification

Product Model	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