# Scoring & Timing Solution for American-Football

# 1. Introduction

This is a professional solution for LED scoreboard display in American-Football stadiums.
Mainly for large-scale American-Football matches which held in professional sports venues.
The system functions conform to NFL rules.
Match arrangement, real-time scoring & timing display, players' & referees' info display, rank statistics export & print, and advertising display can be realized through the coordination of Match Scoring System, Meet Management System, etc.
It is an ideal choice for most of smart and professional stadiums.


2016, AFLC (American Football League of China) Finals

**1.1 System Architecture**

The whole system is composed of several subsystems, including: Match Scoring System and Meet Management 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, Scoring & Timing Host, Referee Score Terminal, etc.

It is mainly operated by the referees to realize the scoring and timing work and real-time scoreboard display.
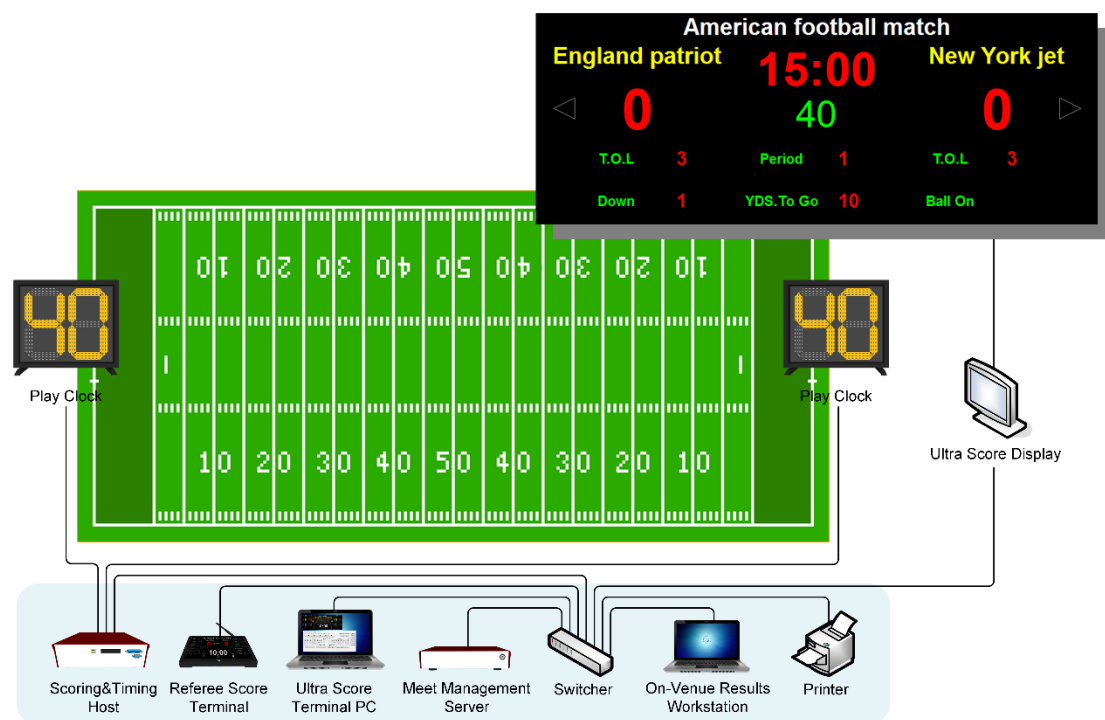
The system functions conform to NFC rules.

● **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, technical statistics, court arrangement, rank statistics, etc.

**1.2 System Chart**



**System Structure 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, Football 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) **Match Scoring & Timing Host:** It is the core scoring & timing equipment which is installed in the Officials Table and has the function of hot backup. Use the special cables to connect the Play Clock.

4) **Referee Scoring & Timing Terminal:** Installed in the Officials Table for referee's operation of score and penalty. It can be connected to the LAN through network cable or WIFI.

5) **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.

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## 2. Specification for products

### 2.1 Ultra Score Software

| Products | Details |
|---|---|
| Ultra Score software | ◆ Standalone edition<br>◆ Supports: American-Football<br>◆ Including 1 dongle |
| Ultra Score software | ◆ Standard network edition (Terminal + 1 Display)<br>◆ Supports: American-Football<br>◆ Including 1 dongle |
| Ultra Score software | ◆ Professional network edition (Terminal + Referee + 2 Display)<br>◆ Supports: American-Football<br>◆ 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.
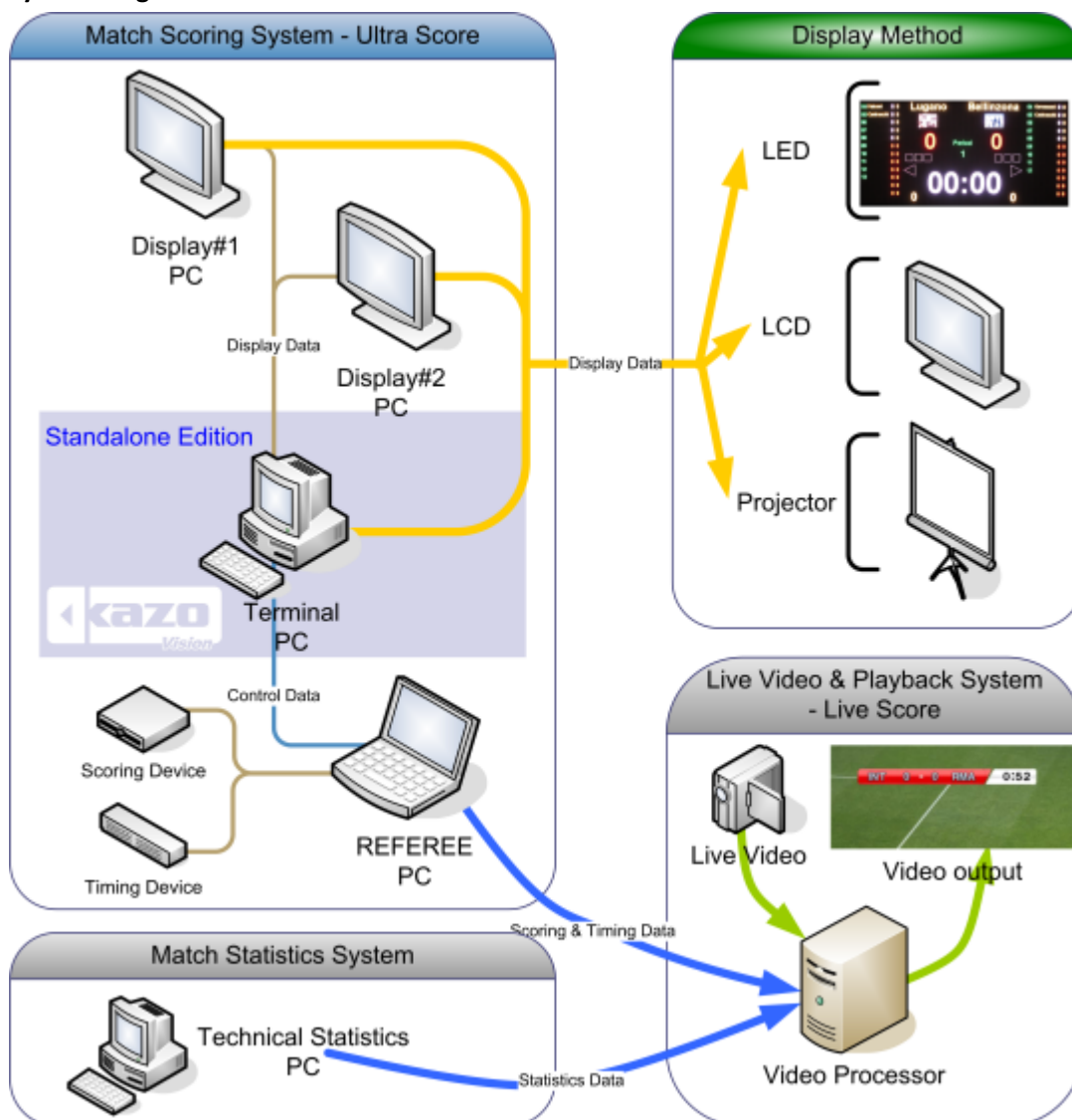
**Network Professional Edition:**

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).
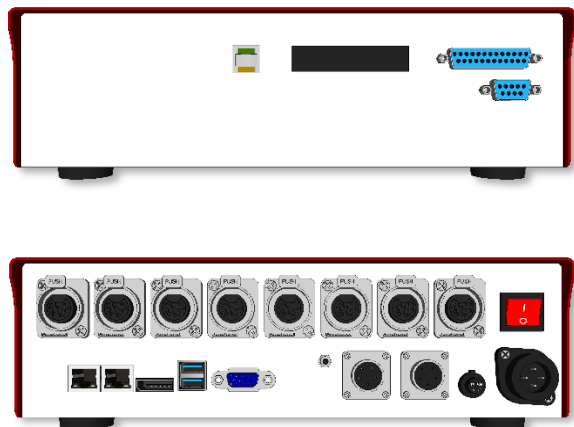
**Scoring interface for American football**



**System Diagram:**

**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.

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## 2.2 Match Scoring & Timing Host



**Match Scoring & Timing Host**

| | |
|---|---|
| Model | KS-MONSTER |
| Size | 260 x 280 x 80 (mm) |
| Support | American-Football |
| Other | Supports hot switching between the main and backup system. |



**Match Timer Handheld**

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



**Shot Clock Handheld**

| | |
|---|---|
| Model | KS-G-ST |
| Size | 120x80x25(mm) |
| Communication | Wired |
| Function | Shot Clock Timer start, pause, adjustment, close and reset. |

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| Item | Details | Item | Details |
|------|---------|------|---------|
| Product | Match Scoring & Timing Host | Model | KS-MONSTER |
| Size | 260 x 280 x 80 (mm) | Net Weight | 3 KG |
| Material | Iron | Power | 60W |
| CPU | Intel J3160 | RAM | 8GB |
| 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 |
| Language | English | Timing Accuracy | <=10ms |
| Port | G-Port×8, Shot Clock port×2, Audio×1, USB×2, Serial port×1 | | |
| Accessories | Match Timer Handheld *1, Shot Clock Handheld *1 | | |
| Supporting Games | American-Football | | |
| 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 PlayClock.
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 the post-match celebration mode.
9. Supports real-time data output, which can be used for live broadcast.
10. Monitoring the status of scoring devices, providing convenient fault diagnosis (with a separate monitor).
11. Anti-loose port ensures the safety of match data.

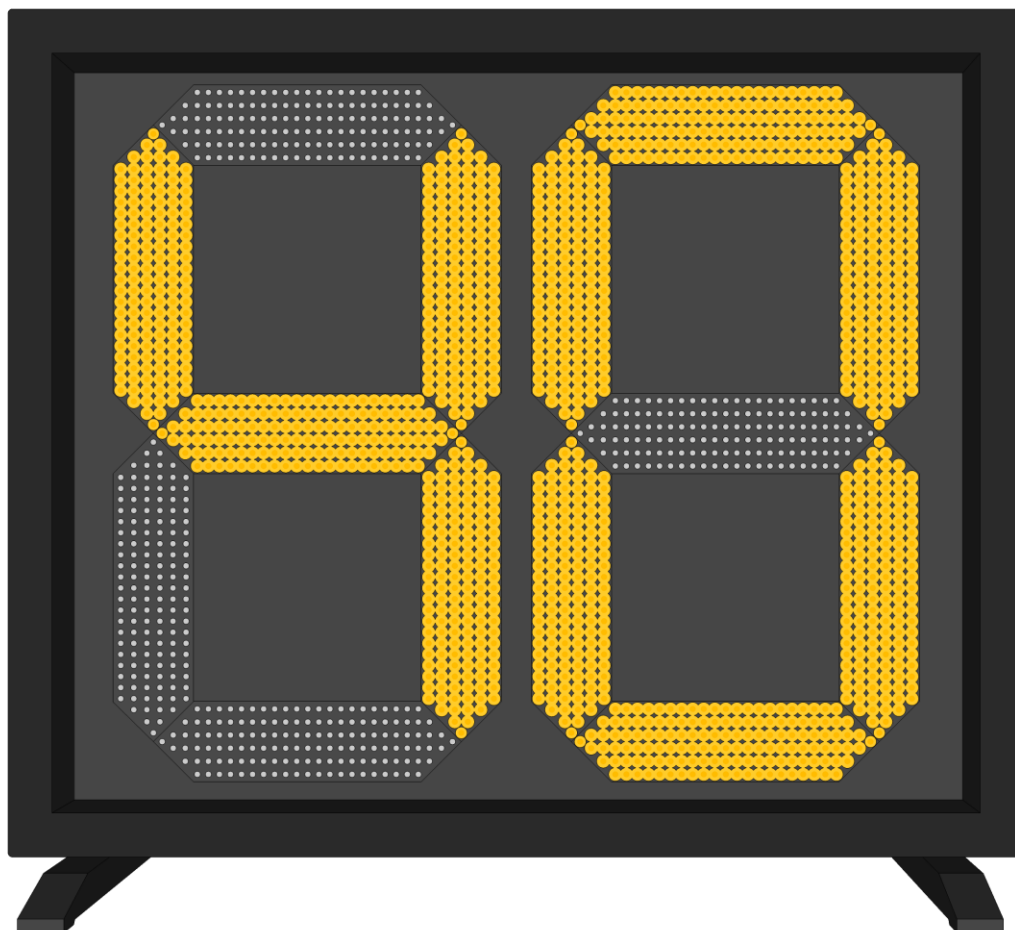## 2.3 Referee Timing & Scoring Terminal



**Detailed parameters**

| Item | Details | Item | Details |
|---|---|---|---|
| Product | Referee Timing & Scoring Terminal | Model | KS-GC18 |
| Size | 281 x 173 x 39 (mm) | Material | PVC+Metal |
| Touch LCD | 11.6 inch | Resolution | 1920*1080 |
| OS | WIN 10 | Battery | No Built-in Battery |
| Communication | LAN / WLAN | Hard Disk | SSD 180GB |
| Video Output | HDMI*1 | RAM | 8GB |
| Functions | | | |

1. Timer: Includes minute, second, deci-second, 14S and 24S timing function. And also have count up, count down, start/pause/reset/correct timing functions.
2. Scoring function: Modify the score of the team and player.
3. Penalty function: Team foul control, Player individual foul control, Player Penalty control, Substitution control, Player yellow/red card control, etc.

## 2.4  Football Play Clock

| Item | Details |
|---|---|
| Football Play Clock | Model：KS-AF10<br>Size：1200x1000x100(mm)<br>Cabinet: Aluminum<br>Display: Yellow<br>Net weight: 30KG<br>Support: American Football<br>Function:<br>◆ Single side display.<br>◆ Be connected by the referee console.<br>◆ Offensive timing of American Football match. |

### 2.5 Meet Management Server

| Products | Details |
|---|---|
| Meet Management Server | Model: KS-MMS-MINI<br><br>Size: 260x135x35 (mm)<br><br>Weight: 1.0 KG<br><br>Input Voltage: 12V DC<br><br>RAM: 4GB<br><br>CPU: Intel J3160<br><br>Hard Disk: 64G<br><br>Communication: LAN*1<br><br>Port: VGA*1, DP*1，USB*2<br><br>Features:<br><br>● Multi-court arrangement, auto generate the order form.<br><br>● Multi-project arrangement, make the schedule more smoothly.<br><br>● Monitor the status of each court in real time, including the current field, rotation and player info.<br><br>● Court adjustment, can manually modify the match court and session info.<br><br>● Summary and print integrated report. |