**Graph Analysis**

**Graph 01**

A screen shot of a graph

Description automatically generated

**High and Sustained CPU Usage Time Frames**

1. August 8, 2024:
   * 3:00 PM to 6:00 PM: Multiple instances where CPU usage spikes close to 100%, with brief periods of returning to lower levels. This period has intermittent but frequent high usage.
2. August 11, 2024 - August 12, 2024:
   * Early morning and mid-morning hours: Repeated spikes in CPU usage close to 100%, observed particularly in the mornings.
3. August 15, 2024 - August 18, 2024:
   * Afternoon hours: Sustained high usage with multiple spikes observed during afternoons across several days.
4. August 24, 2024:
   * 9:00 AM to 3:00 PM: High CPU usage with intermittent spikes approaching 100%.
5. September 4, 2024 - September 5, 2024:
   * Starting September 4 around 8:00 AM, lasting until September 5, 11:30 PM: This period shows sustained high CPU usage, consistently hovering between 80-90% without significant dips, indicating a continuous and resource-intensive process running during this time.

Summary of Key Patterns

* Frequent Spikes in early August indicate possible periodic or scheduled high-load tasks.
* Sustained High Usage from September 4 to September 5 points to a single, prolonged process or workload keeping CPU usage consistently high.

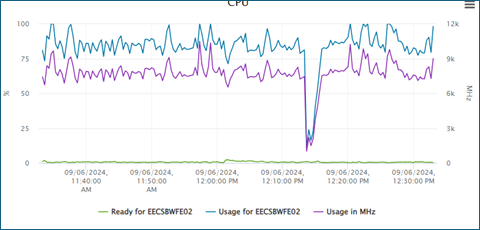
1. **High CPU Spikes (Intermittent Usage)**:
   * There are numerous high CPU usage spikes, mostly reaching or approaching 100%.
   * The spikes are intermittent but frequent, typically lasting only a short period each time.
   * Notable periods with repeated spikes:
     + **08/08/2024, around 3:00 PM to 6:00 PM**: Multiple spikes occur, with CPU usage reaching near 100% in several instances.
     + **08/11/2024 to 08/12/2024, particularly around early morning and mid-morning hours**: Again, CPU usage spikes frequently.
     + **08/15/2024 to 08/18/2024**: Several instances of high usage are observed, typically around the afternoon times.
     + **08/24/2024**: Another cluster of high spikes, mostly between **9:00 AM and 3:00 PM**.
2. **Sustained High CPU Usage**:
   * Starting on **09/04/2024** around **8:00 AM**, there is a clear shift to sustained high CPU usage, where it hovers consistently around **80-90%** with only minor fluctuations.
   * This pattern continues until at least the end of the observed period on **09/05/2024, around 11:30 PM**.
   * This could indicate either a long-running process or a continuous resource-intensive task active during this time, suggesting a different cause than the earlier intermittent spikes.
3. **Low Baseline Periods**:
   * Between the high spike intervals, CPU usage tends to return to a lower baseline, mostly in the range of **5-20%**.
   * These low-baseline periods suggest that outside of high-load events, the system is generally under minimal load.

**Analysis Summary:**

* **Intermittent High Spikes** (08/07/2024 - 09/03/2024): Likely periodic or scheduled tasks that briefly use significant CPU resources.
* **Sustained High Usage** (starting 09/04/2024): Indicates a continuous process or resource-heavy workload that began running around this time.

This pattern could help pinpoint specific processes that were scheduled around these dates, particularly focusing on jobs that started on **09/04/2024**.

**Graph 02**



1. **Near 100% Usage**:
   * **Date and Time**: 09/06/2024, around 11:45 AM
   * **Observation**: CPU usage reached close to 100%, indicating a period of very high demand.
2. **Near 100% Usage**:
   * **Date and Time**: 09/06/2024, around 11:55 AM
   * **Observation**: Another spike where CPU usage approached 100%.
3. **Near 100% Usage**:
   * **Date and Time**: 09/06/2024, around 12:00 PM
   * **Observation**: A third spike where CPU usage was nearly at 100%.

**Average CPU Usage (Excluding Outliers)**

Based on the graph, the CPU usage fluctuates between approximately 50% and just under 100%. Excluding the outliers, the average CPU usage appears to be around **70-80%**.

**Graph 03**

A graph showing a graph

Description automatically generated with medium confidence

1. **High CPU Spikes (Intermittent Usage)**:
   * There are numerous high CPU usage spikes, mostly reaching or approaching 100%.
   * The spikes are intermittent but frequent, typically lasting only a short period each time.
   * Notable periods with repeated spikes:
     + **08/08/2024, around 3:00 PM to 6:00 PM**: Multiple spikes occur, with CPU usage reaching near 100% in several instances.
     + **08/11/2024 to 08/12/2024, particularly around early morning and mid-morning hours**: Again, CPU usage spikes frequently.
     + **08/15/2024 to 08/18/2024**: Several instances of high usage are observed, typically around the afternoon times.
     + **08/24/2024**: Another cluster of high spikes, mostly between **9:00 AM and 3:00 PM**.
2. **Sustained High CPU Usage**:
   * Starting on **09/06/2024** around **8:00 AM**, there is a clear shift to sustained high CPU usage, where it hovers consistently around **80-90%** with only minor fluctuations.
   * This pattern continues until at least the end of the observed period on **09/06/2024, around 11:30 PM**.
   * This could indicate either a long-running process or a continuous resource-intensive task active during this time, suggesting a different cause than the earlier intermittent spikes.
3. **Low Baseline Periods**:
   * Between the high spike intervals, CPU usage tends to return to a lower baseline, mostly in the range of **5-20%**.
   * These low-baseline periods suggest that outside of high-load events, the system is generally under minimal load.

**Analysis Summary:**

* **Intermittent High Spikes** (08/07/2024 - 09/03/2024): Likely periodic or scheduled tasks that briefly use significant CPU resources.
* **Sustained High Usage** (starting 09/06/2024): Indicates a continuous process or resource-heavy workload that began running around this time.

This pattern could help pinpoint specific processes that were scheduled around these dates, particularly focusing on jobs that started on **09/06/2024.**

**Overall Summary of Observed CPU Usage Patterns**

**1. August 7 - August 31, 2024 (Intermittent High CPU Usage)**

* **Dates with Spikes**:
  + **August 8, 2024, from 3:00 PM to 6:00 PM**: Multiple CPU spikes close to 100%.
  + **August 11 - August 12, 2024, especially in the morning**: Frequent high CPU spikes, reaching near 100% intermittently.
  + **August 15 - August 18, 2024, afternoons**: Sustained high CPU usage observed across several afternoons, with multiple peaks.
  + **August 24, 2024, from 9:00 AM to 3:00 PM**: Another period of frequent spikes reaching close to 100%.
* **Pattern**: The CPU usage during August shows intermittent but frequent spikes, typically returning to low levels (5-20%) between these peaks. These spikes suggest periodic tasks or scheduled processes consuming significant CPU resources for short durations.

**2. September 6, 2024 (Prolonged High and Sustained Usage)**

* **September 6, 2024, starting from 8:00 AM to September 6, 7:30 AM**: CPU usage remains consistently high, hovering around 80-90% without significant dips.
  + This period indicates a **long-running process** or workload that utilized substantial CPU resources continuously for nearly 24 hours.
* **September 6, 2024, at 7:35 AM**: CPU usage drops sharply from near 100% to about 40%, indicating the end of a major high-resource activity.

**3. September 6, 2024, Daytime Fluctuations**

* **September 6, 2024, from 8:00 AM to 3:00 PM**: Following the initial drop in CPU usage, there are fluctuations with several spikes reaching up to 80%.
  + Key spikes include **noon** and **2:30 PM**, indicating intermittent tasks or processes consuming CPU temporarily.
* **September 6, 2024, after 3:15 PM**: CPU usage stabilizes at a low baseline of around 20%, suggesting the completion of major workloads for the day.

**Consolidated Timeline**

| **Date** | **Time Frame** | **CPU Usage Pattern** |
| --- | --- | --- |
| **August 8, 2024** | **3:00 PM - 6:00 PM** | Intermittent spikes up to 100%. |
| **August 11 - 12, 2024** | **Morning hours** | Frequent spikes, especially in the mornings. |
| **August 15 - 18, 2024** | **Afternoon hours** | Multiple high-CPU events across afternoons. |
| **September 6, 2024** | **2:40 PM onwards** | Sustained high usage (80-90%). |
| **September 6, 2024** | **3:10 PM - 3:50 PM** | Fluctuating usage with peaks up to 80%. |
| **September 6, 2024** | **After 3:15 PM** | Stabilized low CPU usage. |

**Final Insights**

1. **Recurring High Usage Patterns in August**: Frequent, high CPU spikes likely due to scheduled tasks or periodic processes. These tasks don’t last long but cause noticeable CPU strain at specific times.
2. **Continuous High Usage in Early September**: A sustained workload began on **September 6**. The consistent high usage suggests a long-running process or a batch of tasks consuming resources over nearly a full day.
3. **Fluctuating and stabilizing on September 6 at 3.20pm**: Following the peak usage periods, there’s a pattern of fluctuating usage, possibly due to residual tasks, eventually tapering off into a stable, low usage by the end of the day.